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Old Bailey tries first computer fraud case

by Brian Moore

THE first computer fraud trial to be tried at the Old Bailey began last Thursday.

Sylvia Richards, who was head of the Payments Department at the London Borough of Merton, was alleged to have fiddled the computer at Wimbledon Town Hall so that it sent three cheques totalling £13,956 to her son Robin Brayshaw, of Thornton Heath, Surrey.

Robert Watson, prosecuting, said Mrs Richards covered up her tracks by feeding "inputs" to the computer to make the payments untraceable.

By a complete fluke the alleged fraud came to light, the jury heard.

A member of the audit department was carrying out a routine check last March to ensure that the council's budget figures were on target.

He found two invoices he could not understand and became suspicious. "It was purely by chance that this check was carried out and as a result of later inquiries the fraud was uncovered," Watson said.

"It was very commendable detective work by both police and the Borough's audit department."

Counsel added: "This is the first time in these courts that a fraud on a computer has been the subject of a trial."

Richards, of Croydon, Surrey, was said to have instructed the computer to make cheques payable to her son under a false name – David Allen.

Brayshaw, using the name Allen, collected the £13,956 and paid £2,000 to his mother who opened a building society account under a false name, the court heard.

Brayshaw pleaded guilty to conspiracy to defraud and he will be sentenced later.

His mother has denied conspiracy to defraud the London Borough of Merton.

Richards opened her building society account under a false name but using her correct home address.

When she realised the investigators were "hot on her trail" she went to the building society offices and asked for all the money to be sent to her by cheque payable to Barbara White, the false name she opened the account with.

When the cheque for £2,000 subsequently arrived at her home she returned the letter, unopened, and marked "Not known at this address", the court was told.

The trial continues.

RICHARDS . . . Alleged to have fiddled Wimbledon Town Hall computer.

Next week too late – Compeda chief

by Ron Coates

NEXT week could be too late to decide the future of State-backed Compeda, the computer-aided design and manufacture systems house.

Compeda's backers, the British Technology Group, stated early this week that no decision on the future of Compeda was likely to be made before the end of the week, if then. The group has been pushing Compeda to find private capital or a partner since mid-1981.

But on Tuesday Keith Trickett, Compeda managing director, said: "Next week will be too late. For Compeda to have a future a decision must be made soon.

"We are losing staff. A dozen have resigned so far, but morale is going down fast – they have been on notice for four to six weeks."

Compeda has had bids from mini-maker Prime and graphics specialists Tektronix, as well as its US business partner Computervision. These are all US firms. In the UK discussions with Racal have so far borne no fruit.

Compeda was set up by the National Research Development Corporation, a predecessor of the BTG, in 1977 to sell UK developed computer aided design and manufacture software.

In 1981 it met its target by breaking even and made a small profit. At that time it was looking for £10 million of outside investment, which would have left the NRDC as a principal shareholder.

Earlier this year Compeda won an ICP annual software award for selling more than $5 million worth of its plant design system PDMS.

Minister halts Compeda sale

by Andrew Thomas

INFORMATION Technology Minister Kenneth Baker last weekend stepped in to halt the sale of systems house Compeda hot on the heels of a High Court writ issued to delay the sale.

And Baker was due to chair a meeting last night to decide the future of the State-backed computer aided design and manufacture software house, which is at present scheduled to be dismembered and sold by its parent, the British Technology Group.

The writ to delay the sale was obtained last Friday by Nottingham-based Isopipe, which claims to be the originator of the award winning and best-selling plant design and management package PDMS, sold by Compeda.

Compeda was instructed to seek outside finance by BTG 18 months ago, but talks with Racal and Quest Automation broke down earlier this year. The company then began discussions with US companies including mini-maker Prime and Computervision, the current favourites to take over the major part of Compeda.

The BTG last month issued notice to Compeda staff, as group chief executive Brian Willott said "to give prospective purchasers a sense of urgency."

Compeda managing director Keith Trickett said this week: "It's difficult to describe the situation without being downright rude. I'm apoplectic about it. All this haggling is going on at the expense of the employees. The Department of Industry keeps changing the ground rules. In June they said they had no objections to overseas buyers if there weren't any interested UK firms, but now they've changed the rules."

And Trickett claims that key staff are leaving because of the uncertainty.

An Industry Department spokeswoman said that the situation was still under urgent consideration. She said: "Details of the discussions are confidential. We hope an announcement will be made soon."

Isopipe claims to have formed a consortium of UK users of the PDMS system to take over its sale and maintenance.

But when Computer Weekly asked Isopipe director Vernon Taylor for details of the consortium on Monday, he admitted that it did not actually exist.

"It may exist by tomorrow (Tuesday) evening," said Taylor.

LAIDLAW and WILMOTT can congratulate themselves on ICL's return to profits.

ICL is back in profit—and on rights track

by Kevan Pearson

ICL this week announced a dramatic return to profitability in 1982 with a pre-tax profit of £23.7 million for the year to September 30. It also announced plans to raise a further £104 million in share capital in the coming year with a two for three shares rights issue.

ICL's 1982 performance compares with a pre-tax loss of £49.8 million in 1981. At the halfway stage in 1982 the company made a pre-tax loss of £15.5 million, though Sir Christopher Laidlaw, ICL chairman, said at the time that the company was trading profitably in the second quarter.

So the result was not unexpected, though the magnitude of the profit may have taken the stock market by surprise. ICL's second half profit was £37.2 million.

Sales in the period rose only 1% to £720.9 million.

All the improved profit performance has come from a major reduction in costs. And employee costs have borne the brunt. The company cut £52.5 million from employee costs out of a total cost reduction of £73.5 million. Personnel costs for ICL's 23,500 worldwide employees now represents about 42% of turnover compared to over 50% a year ago. Laidlaw said that the company had virtually finished its workforce rationalisation.

Inventories also fell in 1982, by £10 million, in addition to a £42 million fall in 1981.

Results were brought forward a week to coincide with the rights

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issue, which Laidlaw described as "the last stage in our financial restructuring".

Robin Biggam, ICL's financial director, added that ICL will "not need to come to the market again for some time".

Details of the new issue are that shareholders will be offered two new 25p ordinary shares priced at 60p for each existing three shares. At the time of offer this was 26p below the current market rate.

Commenting on the next year, Laidlaw said that although he was pleased with the company's second half performance, he warned observers "not to regard the present year as a pointer to next year's performance". He added that the first half was traditionally weak for ICL and that first half performance this year was likely to be "meagre".

One area in which ICL will be increasing its expenditure, reversing the trend of the last four or five years, is in research and development.

■ Boris Sedacca adds: ICL's offer price of 60p appears to give a generous discount against the recent market price of 86p, but the price dropped to 82p at the close of trading on Monday when the issue was announced. A stockbroker with Heseltine, Moss and Partners commented: "Having come to the market so often, ICL had to make the issue attractive. I do not think shareholders will be too happy to buy another block of shares, and the price is bound to be depressed in the short term."

Takeover of troubled Computel

by John Kavanagh

ONE of the leading independent ICL-based bureaux, Computel, has been taken over by a US-backed company, Beaufort Computer Services, another ICL specialist. The merger creates a £9 million bureau company with about 180 staff and running two ICL 2966 mainframes.

Computel hit problems at the end of 1980, when it lost a major customer, believed to be British Telecom. Since then the number of staff has dropped from 170 to under 100. Turnover is about £2 million.

The takeover will see the closure of Computel's big 2900 computer centre in Bracknell, Berkshire, as the bureau business is centred at Beaufort, Gloucester. The move is expected to be completed by April. Computel's equipment will be sold.

Kevin Kelly, head of marketing at Beaufort, said the company expected to employ up to 40 Computel staff. Some would go to Gloucester and others would be offered jobs at Crown Computer Services, a 60-strong systems house in Woking, Surrey, which Beaufort owns with Crown Life Insurance.

Beaufort is owned by General Reinsurance of Connecticut. It specialises in computer systems and services for the insurance industry. A third of its business comes from two General Reinsurance subsidiaries in the UK.

Computel was formed in 1969 by the civil engineering and building firms Richard Costain and John Mowlem and Company. This week the companies said they were selling Computel because their computing needs had largely split from Computel and they wanted to concentrate on their main business.

Tories urge action on Alvey report

CONSERVATIVE Party members are urging the government to act quickly and positively on the Department of Industry's Alvey Committee report on priorities for UK development in computing.

The 80-strong Conservative Computer Forum says the report should not be allowed to go the same way as a Commons Select Committee report on the UK computer industry, which was ignored after taking two years to produce at the start of the Seventies.

Tribunal delay

THE decision of the two-day Industrial Tribunal which met last week to hear Jenny Wright's case for alleged unfair dismissal from Sheffield software house EDP will be delayed probably until after Christmas. The hearing for the other 17 strikers is now postponed until the New Year.

MITCHELL . . . Joins Alliance.

Alliance choice

UNITED Leasing chairman Parry Mitchell has leapt from Liberal to SDP-Liberal Alliance candidate for Ealing-Acton in London. Mitchell was selected from 64 applicants to fight a seat held with a 5,798 majority by the Conservatives at the last election. He will look to win votes on the issue of new industries from high technology and the need to introduce information technology throughout society.

'New lease of life' for Apple II

by Andrew Thomas

EIGHT-BIT microcomputers can outperform a 16-bit, according to Digital Research, author of the CP/M operating system. The company chose this week's Comdex show in Las Vegas to launch the CP/M card, a high-performance plug-in board for the Apple II, which is claimed to give the ageing micro a new lease of life.

Priced at £280, the card enables the estimated 750,000 users of Apple micros throughout the world to gain access to the myriad applications available under CP/M. Paul Bailey, Digital Research's Director of European Operations, estimates that a further 350,000 Apples will be sold in 1983, and that 80% of the installed base will be prospective customers for the card.

"It's a $40 million hardware market," says Bailey, "Apple is the biggest market for CP/M."

The board incorporates a Z80 microprocessor, running at 6 MHz, and 64 Kbytes of memory. In addition to CP/M Plus, it features automatic bank switching with cache memory, CBasic, and GSX-80 graphics.

BAILEY . . . $40m market.

"The Apple is now the most sophisticated eight-bit computer available," says Bailey. "With the store size now extended to 112K, it outperforms 16-bit machines on price/performance. We considered a 16-bit card for the Apple but decided it wasn't worth it. There is still a lot of potential in most eight-bit systems, and users who are perplexed by the current preoccupation with 16-bit systems don't realise that they can get performance as good – and in some cases better – by running CP/M Plus."

Commercial setback for Intel

by Philip Hunter

INTEL has been set back in its bid to spring from its chip-making base into the commercial systems market. The US giant has admitted that sales of its first database management package, System 2000, have come far below expectations, and says that its marketing emphasis will move away to other products.

"We have had a lot of problems with sales channels," says Alan Hochman, marketing manager, Intel Europe.

Intel has been forced to broaden its market base by intense competition in the semiconductor chip business, especially from the Japanese. In 1981, revenues fell for the first time, from $854 million to $788 million, and profits were slashed from almost $100 million to just $27 million.

Part of this profit loss is accounted for by R&D expenditure, which leapt by $20 million to $116 million in 1981. Vaemond Crane, vice-president and general manager, claims that systems sales have increased by 25% per annum since 1979, and are making up for Intel's declining market share in chips.

In other applications, Intel has been more successful. The company is developing a cluster control box for the IBM Personal Computer based on its 8086 chip.

In the UK Intel is expanding, and will transfer some of its operations from the Brussels European headquarters in 1983. This should bring an extra 40 systems people into the UK.

Intel's 8086/330 microcomputer launched late 1981 has been a moderate success. There are now seven models, which Intel is cautiously releasing into various sectors of the market.

"We are selling chips to the man who wants to build a board, boards to the man who wants to build a box, and boxes to the man who wants to build a system," says a spokesman. "But we do not want to tread on the toes of our customers who want to develop our boxes."

US research bodies aim to counter Japan

by Howard Karten

THE US government and industry should get together on a project to develop a supercomputer, much as the Japanese have done. This is the thrust of two recent reports prepared by prestigious US research organisations, the Lawrence Livermore National Laboratory in California, and the Los Alamos National Lab in New Mexico.

The Los Alamos document is said to note that the Japanese are working on a machine with a 10 gigaflops rate. Perhaps coincidentally, Control Data announced recently that one of its Cyber 205 machines, equipped with four Vector pipeline processors, had recently reached a speed of 791 Mflops. The company will be selling these units in 1983, for a tidy 12 to 15 million dollar fee, including site preparation, some training, and a Fortran compiler. CDC's spokeamen were reluctant to estimate publicly the name of the customer.

CDC's spokesmen also noted that in past years it has pre-announced the speeds of some of its hardware "and have had a hell of a time living up to them."

LINE NOISE

AFTER all the talk about privacy, software piracy, computer frauds and the like it seems that no one is really bothered about the legal implications of computing. Response to Milton Keynes Development Corporation's call for companies' experiences has been somewhat underwhelming. Three months after launching a study into the legal aspects the corporation is still waiting for some decent replies and has shelved the project. So you only have your apathy to blame if your wonder terminal is hit for six by some legal quirk dating back to the semaphore days.

THERE has been an influx of large potential orders from Canada and Germany for SPL International's *new ADS Entry Point System (Adept). The launching of this low-cost pre-packaged message switching system was due to take place today, but has been postponed. It is likely that we will be hearing a lot more about Adept soon.*

ANYONE saving up for an IBM Personal Computer would be well advised to hang on for a bit longer. The subject of home computers came up this week in a conversation involving the wife of a top IBM UK man, and she let slip a tiny hint: "Yes, I wanted one of those PCs, but my husband told me to wait because the British one will be much better than the one you can get in the States at the moment." And the latest date for the PC (whichever model it is) to arrive here is now March/April '83. Only time will tell.

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Govt blamed for St Gobain losses

by Jack Gee

FRANCE'S State-owned conglomerate Saint Gobain has suffered a severe financial setback following the government's orders to withdraw from potentially profitable activities in the computer and electronics industry.

Company results for the first half of 1982, just published in Paris, show a net loss of £60 million.

This is due mainly to the drop in the value of the shares of Machines Bull, in which Saint Gobain holds a 51% stake. Saint Gobain provided £45 million in June to enable Machines Bull to buy out the bulk of Honeywell's holding in CII-Honeywell Bull.

Saint Gobain remains owner of Machines Bull but without any powers over its operations. Machines Bull owns over 26% of Olivetti and 80% of CII-Honeywell Bull. Saint Gobain's total stake in Olivetti is 30%.

Saint Gobain bought its shares in Machines Bull in 1978 for £5 each. They are now worth only £2.20.

Another serious blow to Saint Gobain is the government's decision that Thomson-CSF is to take over control of Eurotechnique, the computer components firm in which National Semiconductor is a 49% partner. Saint Gobain owns 51%.

When Saint Gobain was nationalised in February the government said that it must pull out of computers and electronics and return to its traditional activities in iron casting, paper, insulation and glass.

The recession in building has had serious consequences for Saint Gobain's orders for glass and insulating equipment. The firm's management is concerned about the effect of the government's new strategy which has shut it out of new technological ventures while confining it to unprofitable sectors.

CII-Honeywell Bull's future is also uncertain. The French Press has reported dissatisfaction within the French government over the performance of Jacques Stern, the company's administrator-general who was appointed after the nationalisation of Saint Gobain.

Officials at CII-Honeywell Bull decline to confirm rumours that Stern, who came to the State-run electronics firm from SESA, a successful software company, may soon be asked to step down.

Industrial circles in Paris are already mentioning Stern's possible successor as Gerard Thery, who headed French Telecom under President Giscard d'Estaing until his defeat by Mitterrand in the 1981 elections.

Thery is credited with the success of French Telecom's efforts in launching Teletel, France's interactive videotex, both in France and on the international market, particularly the US.

IMLAY . . . "Mainframes will talk to micros".

Software house seeks hardware solution

by George Black

TOP IBM software house MSA/Peachtree has turned to hardware as the short-term solution to the problem of linking micros to mainframes.

The "black box" protocol converter is to be launched next year in the UK as the company's solution to handle the discrepancy between the EBCDIC mainframe protocol and the micro's ASCII code.

MSA chairman John Imlay said: "It's a cumbersome solution which we see as a short-term expedient only. Literally millions of workstations will soon be communicating with mainframes."

And John Hale, Peachtree UK managing director added: "I don't exclude a complete software solution in the end."

The hardware already marketed in the US will be launched in the UK in January under the name of Executive Peachpak. The solution that the $73 million corporation is offering will include a new micro software package called Peachlink. The idea is to enhance MSA's mainframe software by making it available on a range of micros including the IBM PC.

In the spring a second phase will bring the introduction of a plug-in board in the IBM PC which will bring the power of the mainframe to local terminals.

The Peachpak will offer middle managers Peachtext, the word processing system, Peachcalc, a spelling proofreader, telecommunications programs, graphics and a mailing list manager.

The new micro software will be marketed by MSA's existing mainframe software saleaforce. The programs will be distributed in bulk to large and medium-sized organisations. MSA/Peachtree is currently talking to micro hardware manufacturers to tie up the project.

ICL gives executives a 'literate' system

by Kevan Pearson

ICL last week unveiled a new concept in executive computing and a new set of initials to go with it – DSS (Decision Support System).

DSS is essentially about providing decision-makers with computer systems both tailored to the needs of decision-makers – instead of the general purpose systems now used – and in a user friendly format. Robb Wilmot, ICL managing director, described the systems as "literate."

Existing hardware, like ICL's CAFS (Content Addressable File Store) and DAP (Distributed Array Processor) are likely to figure heavily in the DSS, according to Wilmot.

ICL has coined the terms information engineers and information technologists for the computer professionals who will design and build these systems.

These people, says Wilmot, will provide the interface between management and technology, instead of between technologists and technology, as is usually the case.

Decision Support Systems will rely heavily on techniques now being developed in expert or knowledge-based systems. ICL has its own team working in this area under Reg Key, director of ICL consultancy and training.

Ninian Eadie, ICL director of product marketing, backing up Wilmot's remarks that we are sufficiently advanced in hardware technology, said: "Speed of computers is not the only aspect of the industry in need of attention. Widening the application field is also important. We need to be able to access computers in application or problem terms, not just in computer terms."

He said that to implement expert or knowledge-based systems – like ICL's proposed DSS – we need international standards in software and communications, high-level problem oriented languages and "high bandwidth" interfaces to the computer systems.

THATCHER . . . IT Year finale keynote address.

Thatcher backs cabling of UK

by Donald Kennett

THE Prime Minister backed the cabling of Britain in her keynote address at Information Technology Year's grand finale event at the London Barbican yesterday (Wednesday).

The main elements of her speech were outlined by Technology Minister Kenneth Baker and Home Secretary William Whitelaw in a Commons debate last week on the Hunt report.

Baker emphasised that the motivating factor behind plans to introduce multi-channel cable networks was the provision of new non-broadcasting services. For that reason two-way data and video capability would be mandatory, and British Telecom and Mercury would not have exclusive privilege to provide switched services or telecommunications services apart from telephony.

A White Paper, to be published next year, possibly in February, will encourage the more advanced switched star systems by giving them longer licence periods.

The government-sponsored Hunt report, which made recommendations for cabling the UK, was published in October.

British Telecom and Mercury will have exclusive privilege to provide the trunk links between local cable networks, but not the local networks themselves. They will also retain exclusive privilege of voice telephony and the only cable television networks that will be allowed to carry voice telephony will be ones in which BT or Mercury is a partner.

Mercury is the private consortium of companies set up in competition with BT.

There will be no mandatory separation of cable operator and service provider and services will be overseen by a new statutory cable authority. Legislation on cable systems will have to wait until the next session of Parliament, and is unlikely to become law before the middle of 1984. But interim action will be possible in the mean time.

So the declaration in the debate by the Opposition spokesman Roy Hattersley that his party favours a national common carrier, which should be British Telecom, becomes a relevant consideration.

Baker supported the view that star systems could provide more facilities and greater scope for expansion. But he accepted that they could cost 50% to 150% more to install than tree-and-branch systems. Insisting on them would mean delaying the introduction of cable systems by two to three years or longer.

He backed the approach advocated by BT that the alternative tree-and-branch systems should be laid in such a way that they could be easily converted to switched star operation. Ducts installed in the ground will have to be laid in a star configuration.

The incentive to install a star system is a 20-year licence for the operator instead of a 12-year one for a tree-and-branch system.

The choice of optical fibre over coaxial cable would be left to those installing the networks, since improvements in the performance and cost of optical fibre would in time make this choice academic, Baker said.

'Missing boat on fifth generation'

by Kevan Pearson

THE West could miss the fifth generation boat by over-emphasising hardware technology, according to ICL managing director Robb Wilmot.

The danger, said Wilmot last week in London, is that our responses to the Japanese fifth generation project will concentrate too much on the technology and not enough on how to convert the technological initiative into economic benefit.

He described the project as "a highly innovative attempt to increase and enhance the value added component of the Japanese economy," and added that it should not be mistaken for a purely technological initiative.

The technology component was there and it would be developed, but the main aim, according to Wilmot, was to maintain the level of economic growth, which had categorised the Japanese economy, even when other industrial economies, like the UK and the US, were in decline.

"The Japanese already have the economic infrastructure, through MITI (Ministry for International Trade and Industry) and NTT (Nippon Telephone and Telegraph), by which technology will filter through into the economic sphere", he explained. The problem was that Western economies did not have comparable structures.

On the Alvey Committee, Wilmot said, "They did what they were asked to do, but the problem is much bigger than they were asked to tackle".

He believed that the emphasis in Alvey was essentially right. Alvey concentrated heavily on the software aspects of future computer developments, expert systems, automatic software generation and the like.

"Most of the other projects, like Esprit in the EEC, are far too concerned with hardware and chip design, but the real challenge is software."

He added that ICL would be concentrating on this area much more in the future. "We are not going to fight the super computer battle being fought between the US and Japan – in that battle there will only be losers".

WILMOT . . . "We are not going to fight the super computer battle".

Bank pilot for office automation

by Donald Kennett

MIDLAND BANK has taken its first steps into office automation by setting up three pilot schemes.

The first is based on a £100,000 Xionics Xibus integrated office system being installed in the research and information section of the bank's corporate finance division in London. Eight workstations in the information section will be linked via a 10 Mbit-per-second Xinet local area network. The system's duplicated 80 Mbyte filestore will also be accessed by share dealers and managers in other departments in London and in Sheffield.

Next year, links are to be set up to the bank's IBM 3033 in Sheffield, to the public telex network and to several external timesharing services.

The second pilot is a smaller unidentified "networked micro" system for the computer operations department and the third, for a department in the international division, is still under consideration.

IBM takes on non-stop Tandem

by Kevan Pearson

IBM is about to take on Tandem Computers, the market leader in high resilience non-stop computer systems, with a non-stop version of its Series 1 minicomputer.

The machine will be based on the 4995 Series 1 top processor, and version six of the Series 1 RPS operating system, announced in October. No further details are available except that the machine is likely to be sold through OEM distributors.

The main competitor in the non-stop field is Tandem Computers, which in the US has been one of the fastest growing computer companies outside the microcomputer makers.

It has been so successful in carving out a highly lucrative, competition free niche that it attracted the attentions of another of the industry's heavyweights earlier this year, when Digital Equipment announced a non-stop version of its 32-bit Vax architecture.

The entry to the market, first of DEC, then IBM, poses a major threat to Tandem's future growth, though the company enjoys a good reputation, and a very large user base.

In the UK the main domestic supplier of non-stop systems is CTL, with its Momentum 8066 minicomputers.

The Series 1 system is believed to be the first product to arise out of a joint project between IBM's two former operating divisions – Data Processing (DPD) and General Systems (GSD). The two divisions, prior to the 1981 reorganisation which merged them, conducted a study of existing IBM hardware to discover which systems would be the easier to convert to a fault tolerant configuration. Series 1 came out top.

Memorygoes to market

by George Black

MEMORY Computer, part of the £6½ million Irish-owned group, will seek a London Stock Exchange quotation on the unlisted market for its shares this week. Founder-director Pearse Mee said the company aimed to finance a development programme and expand its marketing particularly in England.

Mee and co-founder Aidan McKenna have bought the 42% interest held by Avenue Investment Company and the 25% interest held by Waterford Glass, so they now have complete ownership. Avenue and Waterford board nominees have resigned. A major restructuring of the equity base has been completed along with the appointment of a new board of directors.

UK operations comprise two subsidiaries, Memory Computers (UK) and Memory Computer Services.

RUSHTON . . . Consultancy chief at Data Logic.

'Stars' join Data Logic

by Ron Coates

UK-based systems house Data Logic has relegged its top management and pulled in two stars from the British computer industry.

The £25 million-a-year subsidiary of US giant Raytheon has wooed one of Digital Equipment's top Buro-salesmen, Bob Thorley, to take over as its executive director for sales for the professional services division.

And ex-Burroughs UK managing director Laurie Rushton is now Data Logic's executive director for business consultancy and software.

Within the company another four men have been promoted to executive director to mark a new sales push into the IBM market.

Thorley said: "In professional services we will be taking on about half a dozen sales staff. From within the company we will be setting up a sales support team of another 20.

"Most of those will be doing what they have always been doing, but organised in a different way."

Data Logic was one of the top UK software houses when taken over by Raytheon in 1978. But since then, as company executives admit, it has dropped from public view during its merger with Raytheon subsidiary Raytheon Coast Data Systems.

In late 1978 Data Logic took over software house CSP (Computer Systems and Programmers) and in 1979 turnkey house Square One Computing was merged with the company.

Early this year it took over the bureau interests of Computer Resources.

Amdahl moves into mid-range market

by Kevan Pearson

SEVEN YEARS after it sold its first large IBM compatible mainframe, Amdahl will enter the cut-throat, high volume mid-range market.

The company, which has so far competed only at the very top of IBM's range, will launch a 5840, based on the 5860, in the first few months of 1983, according to the Gartner Group consultancy.

Tom Crotty, a senior consultant at Gartner Group, says the new machine will be aimed at the IBM 3083 model B, the mid model in the three-model 3083 range, and will be rated at about 7.5 mips.

The 5840 will effectively signal the end of the 470 series, Amdahl's ageing first product line. The company claims, however, that the 470V/7 and V/8 models are selling well against newer offerings from IBM and the other plug-compatible machine manufacturers.

The new Amdahl machine will face competition from National Advanced Systems' AS9040 and AS9050 models, both built by Hitachi. The same Hitachi machines form the basis of BASF Computer Systems' 7/70 series, also targeted at IBM's 3083 range.

The new Amdahl processor will bring the company's 580 series to five machines. There are three uniprocessors in the range, and two multiple systems.

Amdahl is to complete the first European installation of its 5860 in December. The machine will go to West Germany. The company started deliveries in August following a six-month delay due to technical problems.

Wilkes Computing

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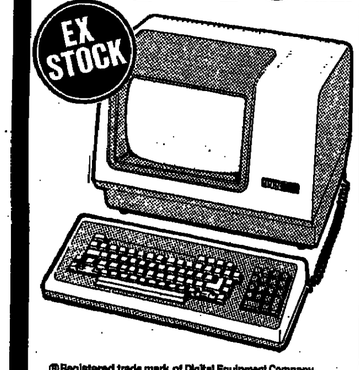

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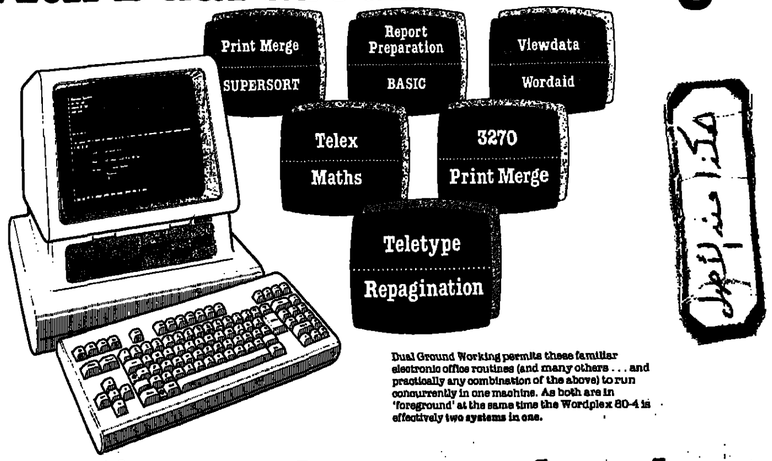
The Wordplex 80-4 with Dual Ground Working



Dual Ground Working permits these familiar electronic office routines (and many others . . . and practically any combination of the above) to run concurrently in one machine. As both are in 'foreground' at the same time the Wordplex 80-4 is effectively two systems in one.

the first word processor based multi-function office system

Because of the unique, Wordplex-developed Gemini operating system's ability to provide Dual Ground Working the Wordplex 80-4 has the power of two systems in one.

The 80-4 has the additional benefit of Winchester disk storage — 10 MB capacity sealed disk unit — while transferable storage facilities are provided by a 800 KB floppy diskette.

The system is completed with the 45 cps top-quality Echo character printer.

Wordplex provide a complete range of compatible and modular office systems. For example, additional applications software or workstations may be added to the 80-4. If even greater storage and processing power is required, the 80-4 system can be integrated with Wordplex shared-resource systems.

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Thirty thousand computer dealers, distributors and software specialists descended on Las Vegas last week from all over the world. They were there for Comdex, a four-day look at what the computer industry will deliver in the coming year... Julian Allason reports.

Show dominated by IBM Personal

THE announcement overshadowing all others at Comdex was that of VisiOn, a new applications environment that promises to resolve many of the microcomputer's problems of compatibility and user friendliness.

IBM's Personal Computer dominated the show by its presence on the stands of nearly all peripheral and software suppliers, and in the emulation of its 8088/MSDOS software standard by virtually every microcomputer manufacturer, most notably the Japanese.

An astonishing number of portable computers made an appearance several boasting IBM PC compatibility.

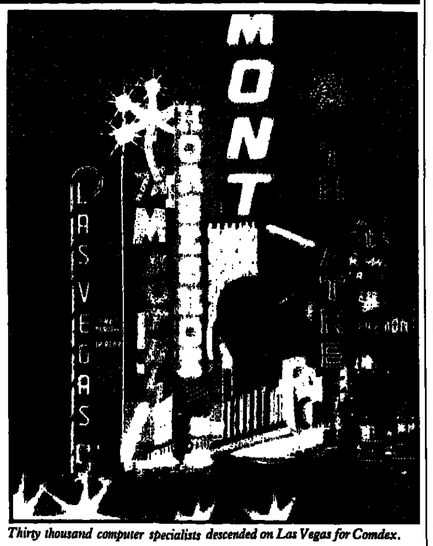
Experienced observers claimed to detect evidence that the Japanese assault on Western markets will be spearheaded by speech technology. Nippon Electric showed a voice recognition system for its Astra microcomputer which boasted a vocabulary of 120 words or phrases, to retail at $2,000.

Micro floppies of both Japanese and US manufacture made their first appearance on a variety of computers, mostly portable. Half-height 5¼ inch mini floppy drives were much in evidence.

Seagate Technology attracted considerable attention with the first half-height Winchester to use thin film discs. Designed as a companion drive to a half-height floppy, the new device is intended to resist the sort of disc damage likely to be sustained in a portable computer.

For technology buffs there were plenty of leading edge products about. One small company, Micom, unveiled an instant voice/data link employing in-house telephone wiring. Called Instalink, the system comprises a small terminal unit that sits under the telephone and transmits at frequencies above the range of human hearing.

Many hardware exhibitors were clustered round the Panasonic stand, peering at their disc-type still video recorder/playback system. Employing semi-conductor laser technology, the unit can store 15,000 frames of information on an 8in disc. Retrieval of a given frame takes just 0.5 seconds, a point that was not lost on the computer makers, since the optical disc requires no processing time.



Thirty thousand computer specialists descended on Las Vegas for Comdex.

'Panacea for the ills of microcomputer software'

VISICORP, the company that brought in VisiCalc, thinks it has just solved the personal computer problem. Its solution is a remarkable new software product called VisiOn. Leading industry figures attending Comdex, where it was launched, hailed it as a panacea for the ills that bedevil microcomputer software.

VisiOn's creators describe it as a new generation applications environment. It is in effect an additional layer of systems software that sits between operating system and applications program. Once installed, the user can flip between jobs as easily as moving papers around on a disc, transferring information between them.

"We have taken the desk-top as a metaphor for what we are trying to achieve," VisiCorp president, Terry Opdendyk, told Computer Weekly.

Each application appears as a window on the screen. Access to them, and to the nine commands that control the entire system is via a mouse. The mouse, which VisiCorp plans to include in the package, is a small box which when rolled across the table top moves the cursor in a corresponding direction across the screen.

A typical VisiOn screen might display a spreadsheet calculation in one window, while information from it is incorporated into a letter being word processed in another. Results of the spreadsheet calculation might be plotted as a bar chart in a third window which could then be shrunk to a smaller size.

Much of the original concept for VisiOn derives from work done at Xerox's Palo Alto Research Centre. The mouse and the technique of overlaying windows were eventually incorporated into the Xerox Star released here last year at £10,700, but have not hitherto been available on low-cost microcomputers.

VisiOn's announcement met with a less than enthusiastic reception from Apple dealers at Comdex. The company's long-awaited Lisa computer is understood to incorporate many of the same concepts and is unlikely to be announced until early next year.

Apple spokesman Stan de Vaughan firmly dismissed speculation that VisiOn had anticipated Lisa, describing it as "a rather limited version of one aspect of one of our upcoming products."

The VisiOn system comprises three components. The first is an operating system overlay called VisiHost which sits invisibly on top of the operating system, diverting to itself responsibility for screen management and control of the mouse.

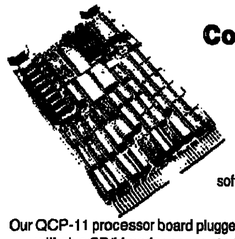
The second component is the VisiOn system itself which manages the user interfaces.

Finally there are the applications programs. VisiCorp plans to offer word processing, database management, spreadsheet and graphics applications in a VisiOn-linked package for the IBM Personal Computer this summer.

Digital Equipment has already announced that it will support the system on its personal range. "To make best use of it you are going to need a Winchester," says DEC's Al Hueffner. "We have had pre-access to it and we are impressed."

VisiCorp appears to have succeeded in its aim of keeping learning time to a minimum. "Twenty to 30 minutes is average," said Opdendyk.

If VisiOn becomes the standard applications environment as such industry opinion formers as Chuck Peddle believe, one likely side effect will be a shot in the arm for independent software producers of the cottage industry variety. Instead of having to rewrite programs for different hardware systems, a single version would suffice.



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JACKSON . . . "A system so compact it fits under your arm."

What's new in Vegas

WITH the competing attractions of lavish parties thrown by manufacturers and all-night gambling, some of Comdex's 30,000 trade visitors appeared to be having difficulty taking it all in.

Concentration was certainly required to absorb heavyweight announcements like that of Altos' new 16-bit 586 micro. This low-cost five-user system offers "out of the box" networking capability, with integral interfaces to both Ethernet and the company's own proprietary network, allowing expansion to over 200 workstations and peripherals.

The new 586 utilises the Intel 8086 processor running at 10MHz, with 256K or 512K of RAM expandable to a megabyte.

"For less than $5,000 we are providing a system so compact it fits under your arm, yet so upgradeable it can run the whole company," maintains Altos president David Jackson.

To add to the hangover-inspired confusion, in many dealers minds, the Altos 586 supports a bewildering array of operating systems, including the Unix-derived Xenix, *MS/DOS, CP/M86, MP/M86, Oasis-16*, and Pick.

"They must be the only company at the show not competing with IBM's PC," observed one dealer sardonically.

Another introduction that had the dealers gawping was that of the felicitously named Mad-1 computer, a 16-bit multi-tasking system of eye-catching design. Based on Intel's 80186 microprocessor, the Mad-1 is modular in design, and incorporates half-height disc drives and other state-of-the-art components.

According to its creator, Dr John Nafeh, it "has the capability to run totally new software now being created for it that is based on developments in artificial intelligence."

Santa Clara, California-based Mad Computer expects to deliver units in late spring for resale at $3,000 for the basic 128 Kbyte unit with 640K of disc storage and 750 × 350 high resolution display.

SALES BRIEF

International hotels opt for Cara

SMALL London consulting house Cara Consulting has won an export order worth nearly £500,000 for four Datahost hotel management systems from the international Sheraton hotel group.

New systems worth £180,000 each are being installed by the Rome and Stockholm Sheratons, and upgrades to existing systems are being installed by the Munich and Brussels Sheratons for £40,000.

BA takes off

BRITISH AIRWAYS has won its largest yet contract of computer systems with the sale of a reservations package to Egyptair, the Egyptian national airline, for £1.5 million. BA has now sold computer systems to 75 world airlines including Singapore Airlines and Australian Airlines, and total sales this year are £7.5 million.

$377m comms

US telecommunications giant AT&T has won a $377 million contract from Saudi Arabia to add 141 sites to an existing microwave system originally installed by Western Electric. The expansion will provide modern telephone, television and data transmission throughout Saudi Arabia.

Corvus for Mars

THE Mars Group has chosen the Corvus hard disc for its Homer microcomputer turnkey system which provides data retrieval and word processing facilities. The deal is worth £500,000 over the next two years to Keen Computers, UK distributors of the disc.

Tunnel contract

FERRANTI has won a £300,000 contract for a construction plant monitoring system to be used in two tunnels on the M25 London orbital motorway. The order was placed by the main contractor for tunnel services, Haden Electrical of London, and will increase safety for plant drivers by giving advance warning of mechanical failures.

£1 million deal

BRISTOL-BASED Transtec Computers has bought the right to sell an accounting package made by Paxton Computers as part of its business microcomputer system. The deal is worth about £1 million over the next 18 months, and software, called Business Desk, includes all the usual sales and ledger facilities.

Prime order

PRIME Computer has won a $12 million order for 32 minicomputer systems from the Water Resources Division of the US Geological Survey. The order includes software and services, and Prime says further additions and upgrades will probably bring the final value of the contract to $40 million.

Fine Fare choice

BURROUGHS has won a £750,000 order for a B6900 mainframe system from Fine Fare, the supermarket group. The order includes Burroughs GEMCOS message control system among other software, and will be used to provide management information on 30,000 products at 590 stores and supermarkets.

Trend to Telex

UK TELEX market has brought orders worth over £13 million in 15 months for Trend Communications' Puma printer terminal. The company has received a repeat order from British Telecom worth over £5 million. The other main UK supplier, STC Business Systems, is delivering its Pericom display terminals to BT under a contract worth around £22 million. The terminal is sold as the Omnitah.

Protection Bill slated by Lindop

by George Black

SIR NORMAN LINDOP, author of the 1978 official report on data protection, has hit out at the government's plans for privacy legislation during the present session of Parliament.

He said a coach and horses could be driven through the forthcoming Bill because of its proposed list of exemptions and exceptions. Registered database holders would be allowed to refuse to say whether they had passed on personal details to a third party, he warned.

And he was worried that the Home Office's intended exemptions from data controls would seriously weaken the concept of legally-guarded privacy.

"We tried in our report to avoid any exemptions – but from the White Paper it seems there are going to be more than ever before," he said.

Government departments had a disturbing tendency to resort to exceptions to the rule when laws were being drawn up, he remarked. "Perhaps there is something in Yes, Minister," he commented.

He proposed that any cases which had to be excluded from checks because of national security interests – and he said that some such cases certainly existed – should be governed by a special set of codes of practice.

Sir Norman was addressing an open meeting of the Freedom of Information campaign at Westminster. He told the meeting that a balance had to be struck between the public's desire to know and the individual's claim to his private life.

His report had been met with a lukewarm reception from the Conservative government because its predecessor had placed importance on the subject of privacy legislation.

"I'm afraid it was a case of the Tweedledum and Tweedledee effect," he commented.

Home Office Minister Timothy Raison had seen no urgency in the matter and had been reluctant to add to the body of legislation. Pressures had built up, both because of the climate of opinion at home and abroad and because of the rapid advance of technology, which led to the government changing its mind in February. Margaret Thatcher's sudden announcement had taken most people by surprise. But when the White Paper appeared it was "a very meagre document indeed", which made it difficult to say just what the Bill would consist of.

One important omission seemed to be that the new law would not cover data kept on non-computerised media.

LINDOP . . . Bill has too many exemptions.

Police agree code on privacy

by Kevan Pearson

POLITICIANS and police on Merseyside last week set out a code of practice for the computerisation of police records – the first time a local agreement on data protection has been reached.

The concord between Merseyside police and the Police Committee of the County Council resulted in authorisation for the police to buy a £260,000 Honeywell DPS 6/54 minicomputer as the first step in a £1.8 million plan to build a national network of police computers linked to the Police National Computer at Hendon.

A spokesman for the County Council said, "While computerisation had to come we felt that certain safeguards to protect the rights of the data subject were necessary".

Initially the police had submitted a code of practice based on those employed at the PNC Hendon site, which has been subject to several breaches of security, one involving Labour MP Michael Meacher, which later resulted in the prosecution of a police officer. However, the Police Committee insisted on modifications, and it is the modified code which will be implemented.

The code has safeguards to ensure the accuracy of data during the conversion from the manual system, and only factual data will be stored. The police dedicated system will not be used for criminal intelligence work. There will also be strict checks on who is using the system, and on any information added to a record. Terminals will be disabled when not being used by an authorised officer.

The system is due to go live in mid-1983.

The code broadly follows the lines of the government's White Paper on data protection, which has been roundly criticised for its shortcomings, particularly concerning the right of access to certain types of system.

A member of the Police Committee admitted that there was a great deal of concern about the role of the police in a computerised society, and about the use that the police can make of the computer.

He added that before the Merseyside system is linked to another police computer the Police Committee would be seeking further changes in the code of practice including a security-cleared computer expert to check that the system is being used only for the purposes specified in the code.

The records computer is the second phase in the computerisation of the Merseyside police area. The first phase, a command and control system, began operation in the summer.

Sperry wins approval from four major PTTs

by Howard Karten

SPERRY Univac has taken a lead over other computer vendors in achieving certification by four major PTTs for direct connection of its hardware to their public data networks.

With the approval by PTT authorities in West Germany, the UK, France, and the Scandinavian countries, Sperry has achieved certification in more countries than any vendor so far.

At a briefing in Salt Lake City, Utah, headquarters for the company's Terminal Products Division, Sperry officials explained that Sperry's UTS 4000 serics terminals, the DCP/20 and DCP/40 communications processors, and the System/80 recently met the standards of those countries and would begin shipments soon.

Direct connection avoids the use of so-called black boxes, interface devices that add to the cost and decrease the reliability of connecting to the networks.

The company has done some live tests, routeing communications through Canada and from there to West Germany, and is working on certification in other countries as well, notably Japan and Australia.

The hardware in question will be the same for all countries, and will be produced, at least initially, in the US.

Sperry is adapting to the peculiarities of each country's packet-switching system through software customised to each situation, particularly with the use of a Z80 microprocessor embedded in the UTS 4000 terminals.

That microprocessor also allows the terminals to be used as stand alone microcomputers.

IBM settles its case against ex-employees

IBM last week settled a civil suit it had brought against three ex-employees charged with stealing proprietary information related to the IBM Personal Computer.

In September IBM charged three men with appropriating IBM confidential data, apparently for use by Bridge Technology, a company formed by the trio.

All three men were described by IBM as having been key figures in the design, marketing, and future strategic plans for the Personal Computer.

Two of the defendants agreed to an injunction, sought by IBM. The two are barred from using any IBM proprietary or confidential information.

The third defendant consented to an injunction, without admitting liability.

Nellie goes to meet her maker

WHILE the fifth generation is still little more than a twinkle in the eye, the last surviving member of the first generation is returning to its maker, the giant Standard Telephones and Cables.

Nicknamed Nellie, the computer was built in the late 1950s for the Woolwich Polytechnic, but became obsolete in the mid 1960s when STC stopped making computers.

Nellie then found its way into the service of Southampton-based Bruce Banks Sails, which wanted a powerful machine for sail design, but could not afford the then astronomical price of a new mainframe computer of sufficient power. There Nellie served reliably for mathematical number crunching work until 1981, when its programs were transferred to a C&M 8032 microcomputer.

"We were desperately anxious Nellie shouldn't be broken up for scrap," emphasises Ken Rose, technical director with Bruce Banks.

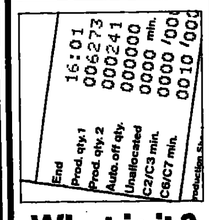
The problem was that no one could find room for a machine occupying a 270 square foot room to itself, and belching out seven kwatts of heat that keep 21 cooling fans busy to prevent valves burning out.

The company searched for two years to find a good home for Nellie. Then STC decided to take Nellie back for its archives and for display at the company's centenary exhibition in 1983.

Rose explains that Nellie was built when precision arithmetic was the rage among computer architects, and therefore the machine was suitable for the mathematical design work at Bruce Banks. "But the machine is really quite useless for DP," admits Rose.

Nellie was programmed in a low level language of its own called Simplecode, or even lower machine code. "That was a delightful co-operative puzzle to sort out," Rose recalls.

Ken Rose (right) examines paper tape input to Nellie.



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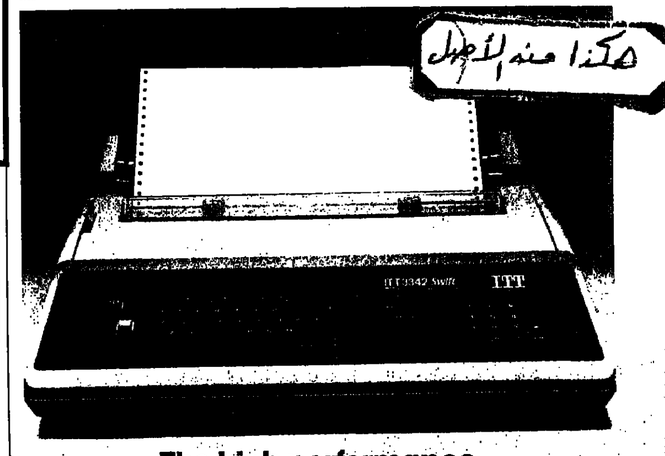

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10-day input delay at Giro Bank

by Kevin Cahill

THE National Giro Bank is experiencing major input problems at its Bootle headquarters, with delays of up to 10 days on some customer lodgments.

The centre was hit by a one-day strike earlier this year following a switch in maintenance suppliers, and some of the problems are believed to be the result of the transfer of maintenance to independent supplier DPCE of Wokingham, from the manufacturers NCR, Recognition Equipment and Lundy Farrington.

Initially none of the suppliers was willing to transfer spares to DPCE, but in the end both NCR and RE gave way and did a deal.

Lundy Farrington, a major supplier of OCR-based input to the Giro Centre, transferred its spares supplies elsewhere.

As a result of this it is thought that up to 25% of the input equipment is either inoperable or being cannibalised for spares.

This in turn has led to erratic delays in the arrival of lodgments, transfers and deposits.

But input equipment is not the only problem facing Giro. The organisation recently transferred much of its processing from an ICL System 4 to a series of other ICL machines, four in all.

According to one source at the Giro the transfer has already overloaded the four new machines including two 2966s, and there is no more room in the DP centre.

And it is understood that there is no budget next year for any more new or additional machines.

A spokesman for customer services at National Giro denied that there was any serious problem.

"Our major customers are pouring funds through for the Christmas period. We would know of any serious problem, and there is none".

DPCE managing director Keith Meadows described the transfer from Lundy as "traumatic" but said DPCE had now taken over the whole site and the input equipment was "performing better than under the original supplier maintenance."

The National Giro has about 1.2 million customers.

Giro customers are being held up by input problems.

Scanmaster takes IBM further into future office

by Andrew Thomas

IBM has taken another step into the electronic office with the launch of the Scanmaster 1 image terminal. The new device, designed by IBM in Japan, digitises graphics, printed forms, or handwriting and transmits them to other Scanmasters via a central computer.

The digitised images can be retained in library files with the same format as VM libraries, and found by commands from any attached terminal. These facilities are made possible by a new set of document architectures comprising the Document Interchange Architecture (DIA), the equivalent of an electronic envelope for filing and distributing images, and the Document Content Architecture (DCA) which controls the image formatting and page sizes of each article.

Two programs support the new device, the Distributed Office Support System (DISOSS), and the Image Distribution System, which runs on a 4300 or larger machine.

DISOSS provides the capability for Scanmasters to function in small networks with Displaywriters, the 5520 Administrative System, and as part of a distributed system such as the 8100 Distributed Office Support System.

Image documents can be treated as text documents within DISOSS, and the user of an attached terminal can request printing of a previously stored document at a local Scanmaster.

Interrogation and modification of stored images is not currently supported, although IBM claims that any user who finds the need for such facilities will be "pricing in the right direction".

BAKER . . . "More money for technology."

Minister adds £30million to optics funding

by Donald Kennett

THE government is putting up an extra £30 million to back developments in fibre optics and opto-electronics. Of this £15 million will extend the £25 million scheme announced last year, and the other £15 million will back long-term research projects in which companies and universities collaborate.

Announcing the new funding last week, Information Technology Minister Kenneth Baker said "I've always said that when we reached the ceiling we would find some more money for this. One lot of £15 million has come from a re-allocation of priorities in the Department, the other £15 million from the last budget. We are planning increased expenditure on technology and this is some of it."

The research scheme will give companies grants of 50% of their research costs, while their university partners will get 100% grants from the Science and Engineering Research Council. "We are anxious to make quite sure the valuable work being done in universities comes out into industry," said Baker.

This work is expected to take more than five or even 10 years to yield commercial products, and it will cover areas including data storage, display technology and Langmuir-Blodgett film. This film is used as an insulator and protective layer in integrated circuits and transducers based on semiconductor materials such as gallium arsenide which cannot form oxide layers as insulation.

Funds totalling £20 million from the year-old fibre optic support scheme have been committed to 29 projects. The grant level has been increased from 25% to 33⅓%, and the applications still being considered would take the funding over its present limit.

Most of the scheme's beneficiaries are keeping their identities secret, but developments being supported are understood to include low-cost high-speed optical fibre based computer communications devices.

Two companies that have identified themselves are York Technology of Winchester and Standard Telephones and Cables. York is a small company set up to serve the market for equipment to measure and test the optical fibre preform.

York's managing director, Dr Ed Kluth, said: "Up to 30% of the cost of the final product is associated with measurement. So here we are carving away at those costs. The project has a development team of 20 people, and we could not have done it without support – which we have had in pound notes, very good advice and very good contacts."

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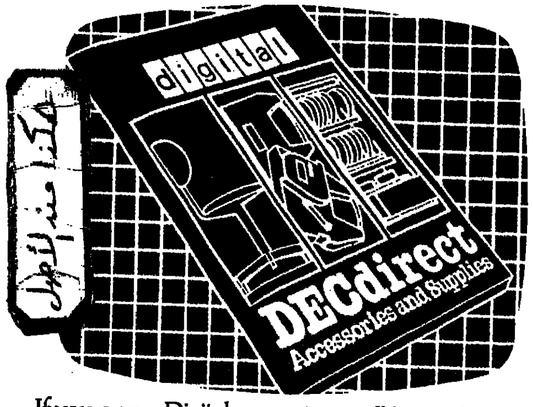

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SOFTWARE FILE

Plea for standards co-operation

LOCAL authorities must work together to establish standards for the APL language, Terry McKee of IBM Portsmouth told the third meeting of the Local Government APL User Group. The group, which is linked to the UK APL User Group, is to meet at six-monthly intervals to discuss the language from the office user's viewpoint, chaired by John Seddon of Clwyd County Council.

APL for BASF

NAVIN Mehta, British-born APL expert, whose company Ideal Computer Systems is based in Canada, has come up with another version of the language TIS-APL for the BASF 7100 series. Called APL 7.5, it gives the user control over the virtual memory system. The standard APL implementation has been extended for the micro environment. German chemicals and electronics giant BASF went into the small business machine sector in 1979. UK agent will be Alan Pearman of Chester.

Financial move

THE 100 staff of CAP London Financial have moved to new offices in the City from High Holborn, "to be closer to our clients in the banking and commodity and stock markets," said director David Victor. The company is now in a brand-new block at Cutlers Gardens, Bishopsgate. The London Financial branch has a growing involvement in gold and financial futures trading as well as home-banking based on viewdata and point-of-sale systems.

Micro Pascal

PASCALFORM and Pascalisam, introduced by Atlantic Software of Nottingham, have been designed to speed development of business applications programs in Pascal on micros. Atlantic Software is a subsidiary of Keen Computers, which also has offices in London and San Francisco.

Sapphire deal

MERSEYSIDE-based Diktat has signed an agreement with Sapphire Systems to become worldwide distributor of the Sapphire Mars financial modelling package for ICL systems. Diktat will sell the package as part of its Quvis software range for the ICL personal computer and the DRS range.

Fibs for Tandy

FULLY Integrated Business Systems, a Sutton Coldfield software house, has brought in a package called Fibs that runs on Tandy's eight- and 16-bit micros. The software, which can be on soft or hard disc, includes modules for stock control, sales, purchase and nominal ledgers, work in progress and bill of materials.

Pay package

PAYPAK is the name of a new payroll package for up to 10,000 employees introduced by Atlantic Software, designed to run on Zilog Onyx, Plexus, Bleasdale, DEC, Wicat, and Perkin-Elmer hardware. Atlantic Software has offices in London, Nottingham and San Francisco.

Job control

JOB control at Grand Metropolitan Bureau has been made easier by a package called ESP/DIC, which Uxbridge-based Grip (Grand Met Information Processing) has bought from Software Module Marketing of Beckenham, Kent.

Tax changes

A PERSONAL tax system developed for accountants and tax consultants is to be marketed by Datasolve. Taxpoint, run on a desktop micro, is updated to take account of changes in taxes and allowances as they happen.

Future of Insis hangs in balance

by John Riley

EUROPEAN software houses are holding their breath while the future of the EEC Insis (Inter-Institutional Information System) project is debated in Copenhagen by the Council of Ministers and the Commission this week.

Insis was initiated over two years ago to build a private communications network to link the institutions of the EEC and relevant organisations in member countries. Decisions arising from the initial stages of the project need to be adopted formally by the European Council of Ministers.

Insis is still at the stage of architectural definition and planning, but is moving into the pilot development phase. However, the next round of the work programme needs to be approved and adopted by the Commission.

There is no formal budget for next year and this is expected to be decided.

Several consultants, including British, have been looking at user needs, technical aspects (especially norms and standards), economic analyses and problems of introducing new systems especially with regard to changing work habits. So there are several component studies within the overall systems architecture.

A year-long study costing £135,000 has been completed by Pactel on user needs and general communication standards within the field of telecommunications. In addition, a £30,000 contract was started two months ago for further modelling work, including a route dimension pattern for the Insis network.

The White Waghorn consultancy has landed a £35,000 contract for a six-month study to identify the need for file storage and retrieval systems in the offices of EEC institutions.

"We are delighted to have been selected from such a highly competitive field", said Bill Waghorn, Chairman of White Waghorn. "We will be taking into account the likely evolution of costs and technology during the next five years, and also looking at the organisational implications of the new technologies."

This study is related to a £180,000 project set up earlier this year by Langton Information Services, which has been looking at computerised alternatives to paper documents. Langton is preparing its final report for the end of the year. Another component part of the study is being conducted by Butler Cox.

There is effective communication between the consultants.

The future of Insis will be debated in Copenhagen.

YOUNG . . . 1983 will establish micro software leaders.

How to avoid conflicts over contracts

FAILURE to specify what a system is supposed to do has led to more disputes than any other factor, according to a new guide to software contracts.

Lack of appreciation of the importance of functional specifications results in people blaming the computer, says the publication, which is called Contracts for the Acquisition and Utilisation of Computer Software for Industrial Control and Monitoring Systems – a heavy title for a light handbook from the British Electrical and Allied Manufacturers' Association.

Members of the association have been pressing for advice on how to buy software. Now BEAMA has responded with a checklist for making contracts which, it says, puts the emphasis on a balanced approach. "A program is only as good as its specification" is at the heart of this approach.

To illustrate the principles discussed, a specimen set of general conditions for acquiring software is included.

Ella aims to speed hardware design

by Donald Kennett

A HIGH-LEVEL language designed to give hardware designers the same kind of productivity tools that are available to software engineers is to be marketed by South West Regional Computing Centre (SWURCC).

Ella (Electronic Logic Language) was developed by the Ministry of Defence at the Royal Signals and Radar Establishment in Malvern, which houses "the most advanced computer scientists of all the government establishments", according to SWURCC's deputy director, Martyn Thomas.

"You can handle hardware descriptions from a high level down to gate level, all in Ella," said Thomas. "It allows you to give a very specific description of the behaviour of a system and the way it should be implemented.

"The compiler checks it is logically correct – it picks up inconsistencies in data types, then it generates an efficient representation of the resulting program in the machine code of the host machine. The simulator enables you to run a simulation of the design on the host and monitor any aspect of it to find out exactly how it is behaving. So you can design, test and refine a description in more and more detail.

"Hilo 2 (from Cirrus Computers in the UK), Tegas (from the US) and others are the assembly languages of hardware design," he added. "Ella is a true high-level language – it is unique as far as I know.

"I expect Release 1 will be available about next Easter. Then there are a lot of enhancements that can be made and I would expect it to be a continuous development. This will be the start of a very large Ella tool set."

The first version will be available for Digital Equipment Vax machines, because those are what most hardware designers already have, according to Thomas. The language was originally written for an ICL 1900 used by RSRE for its development work.

Financial Controller for IBM PC

by George Black

THE Financial Controller suite from Suffolk and Essex software house Systematics International has been launched on the IBM Personal Computer and the Sirius 1 micro. The suite has also been rewritten in an American version.

The suite sold over 6,000 packages for the Apples II and III – 80% of these were sold in the UK and there are eight modules at £350 each. The first non-Apple versions were introduced earlier this year. These were the result of agreements with Triumph Adler and NEC, which now market Financial Controller under their own names.

To date most users have been smaller companies of up to 100 employees.

UK marketing manager Peter Bayley said that two new programs would be added to the range in January. Written in Pascal, the modules cover general, sales and purchase ledgers, financial planning, invoicing, job costing, payroll and stock control.

Chairman Ronald Young predicts that 1983 will be the year of establishing the leading micro software houses in this country.

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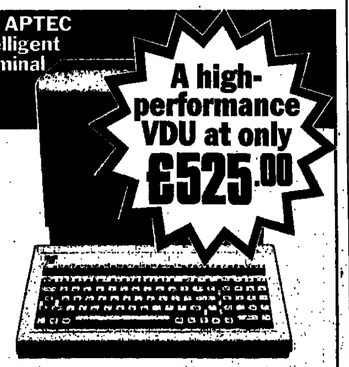

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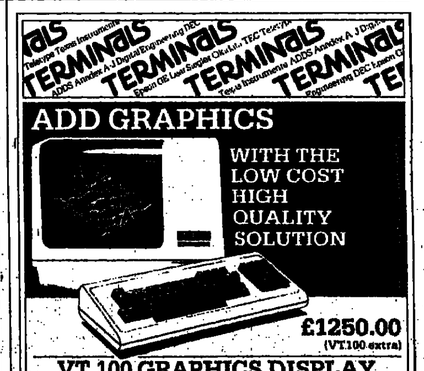

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COMPANY NEWS

BTG puts money into CAM firm

by Andrew Thomas

THE BTG has reached out once more to aid an ailing high technology firm – and this time it isn't even British.

Last week the BTG announced that £900,000 is being ploughed into the setting up of a new computer-aided manufacturing (CAM) company based on the UK subsidiary of the Norwegian Kongsberg Vapenfabrikk group, which *lost £6.5 million in 1981.*

The new company, Kongsberg Systems Technology, has assets of £1.4 million, and employs 85 people at its Maidenhead base. Kongsberg is matching the BTG's £900,000 commitment and will retain 51% ownership of the company.

The BTG denied allegations that Kongsberg would have closed its UK operation had the National Enterprise Board not come up with the cash injection. Kongsberg president Rolf Qvenild gave the BTG a pat on the back by saying that Norwegian industry would benefit from the setting up of a similar organisation in Scandinavia, but admitted that Kongsberg was contracting.

"We made a large loss in 1981, and we will have a loss this year too," he said. "We're closing down the unprofitable sections of the company.

"We are interested in the UK for the new company for two reasons," continued Qvenild. "It's most important for us to have a foothold in the UK, where there is more success than in Norway, and there are more qualified personnel available here." He did not say whether new jobs would be created.

WILLOTT . . . An important milestone in the BTG's support.

BTG chief executive Brian Willott claimed that the venture was an important milestone in the BTG's support for advanced manufacturing technology.

"It will help to bring flexible manufacturing systems within the reach of the average engineering company that wishes to integrate its existing machine tools on a step-by-step basis," he said.

The managing director of the new company will be Kim Cohen, an ex-BTG man.

'Amdahl is poised for return to profitability'

by Kevan Pearson

THE poor financial showing by Amdahl so far this year looks set to continue to the bitter end of 1982, according to the US Gartner Group consultancy.

Tom Crotty, a senior analyst with Gartner predicts that Amdahl's pre-tax profits will tumble 74% to about $12 million, on sales of $432 million, down marginally on 1981. Even $12 million for the whole of 1982 will be an improvement over the figures for the three-quarter stage. In the first nine months of the year the company's profits slipped to 20% of their value in the same period in 1981 – $4.1 million compared with $20.5 million.

The third quarter profit of $630,000, compared with $7.5 million in the previous year, was disastrous. The poor showing is attributed to development problems on the 580 series, Amdahl's answer to IBM's 308X series, but the major problems seem to be over, and Amdahl is actually delivering machines, with 20 scheduled for installation before the end of the year.

Although Crotty sees a significant improvement in the 1983 financial year, he admits that the 1983 forecasts are subject to "technological risk and business risk" concerning IBM's future actions and the response Amdahl will have to make to stay competitive.

The Gartner group predicts a return to reasonable level of profitability in 1983 with sales of $650 million, and gross margin of 10% giving pre-tax profits of $65 million.

But Amdahl is back on the rails. The 580 series was already six months late when it appeared in August and was well behind deliveries of comparable machines from both IBM and National Advanced Systems.

OPEL . . . Return to real profits

'IBM set for real growth'

by Kevan Pearson

THIS year looks like marking the turning point of IBM chief executive John Opel's campaign to return to real profit growth, following several years in which profits have improved only marginally, if at all.

Wall Street analysts predict a 25% improvement in pre-tax profits over 1981. Profits should hit $7.5 billion, on sales of $31 billion, a rise of 16% over the previous year.

At the third quarter stage IBM was already well on the way to achieving a turn around in the poor profit growth which has dogged the company since 1971. Profits before tax stood at just under $5 billion, for the first nine months of 1982, compared with over one billion less in same period in 1981.

And the fourth quarter is traditionally IBM's strongest. In 1981 fourth quarter pre-tax profits rose by over 70% compared with the second quarter. A repeat performance in the final quarter of 1982 would give the company a pre-tax profit of $2.95 billion, which would be an improvement on Wall Street predictions.

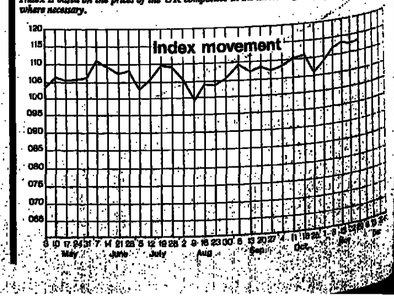
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 3/12/82 Index 112.56 Change +0.8

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Pence Price	Pence C'nge	$ 1982 High	$ 1982 Low	US Stock Stock	$ Price	$ C'ge
166	101	ACT (Ass Comp) (25p)	268	+ 8	33	18	Amdahl	21½	+1
195	107	BOC Int (25p)	177	+ 1	37	21½	Amdahl wts	3⅝	+⅛
152	78	B. Sov Kent (25p)	148	+ 11	31	16	Apollo Data Pro	20	+1
145	46	Data Logic (20p)	140	+ 4	29½	16½	Burroughs	36½	+½
302	180	Data Group (25p)	300	+ 2	49	28	Comp Assn	45	+1
290	245	G. A. & B. (25p)	268	+ 3	50	29	Comp Sciences	39½	+½
300	225	De La Rue (25p)	268	+ 6	50	29	Computervision	39	+1
264	238	Data (25p)	264	+ 20	47	25	Control Data	36½	+½
484	317½	Ferranti (50p)	467	+ 8	84	51	Cray Research	71½	+1½
548	387	GEC (25p)	508	+ 2	97	64	Datapoint	84½	+1½
46	33	ICL (25p)	38	+ 1	8	4	Diamond Shmrock	7	+⅛
47	30	Kalamazoo (10p)	38	+ 1	8	4	Digital Equip	7	+⅛
330	225	Logic Int (25p)	320	+ 10	107½	66	Digital Sys Int	96	+1
150	110	Memec (10p)	115	+ 5	48	30	Gen Automation	42	+1
152	110	Multihead (50p)	153	+ 12	50	30	Gen Dynamics	44	+1
422	310	Micro Focus (10p)	415	+ 5	140	88	Hewlett-Packard	125	+1
250	200	Norsk Data	218	+ 5	74	44	Honeywell	65½	+1
300	240	Orbis & Racal (25p)	270	+ 30	100	64	Intel	84	+1
295	240	Philips Lamp (£10)	290	+ 5	98	64	IBM	84	+1
545	345	Quasar (50p)	480	—	184	114	Intern Inst	164	+1
67	45	Quest Auto (10p)	63	+ 4	23	14	Lockheed (Dividend 50)	20½	+½
207	138	Racal Elect (20p)	204	—	70	43	MSA (Myers) (50)	62	+1
283	171	Redifusion (25p)	270	+ 6	95	45	Motorola	84	+1
288	180	Star Comp (10p)	242	+ 15	104	64	Nat Semicon	92	+1
283	192	Thorn-EMI (50p)	400	+ 5	135	84	Prime Comp	120	+1
102	74	UCSY (50p)	96	+ 5	34	21	National Semi	30	+½
		Unlisted Securities Market							
90	82	Bus Comp (10p)	88	—	31	19	Perkin-Elmer	27½	+½
208	78	Cresvale (CAP) (10p)	190	— 5	74	45	Prime	64	+1
195	160	Int'l Computer (25p)	188	— 6	68	42	Rockwell Int	60	+1
125	110	In Tech (25p)	118	—	44	26	Tandy	38½	+½
60	43	Knight (5p)	43	—	15	9	Texas Inst	13½	+½
218	206	Micro Bus (10p)	218	+ 10	78	48	Wang Labs B	68	+1
216	112	Micro 2000 (10p)	210	+ 8	77	42	Wang Labs A	68	+1
170	85	NMW (£1)	167	+ 4	60	36	Wyly	51	+1
120	43	Telex & Nolan (10p)	120	+ 5	44	26			
120	78	Scantronic (10p)	108	—					
150	98	Tridata Comp (10p)	98	— 4					
112	76	Zygal Dyn (50)	88	—					

The table shows the closing prices in London on Friday and in America on Thursday. The Stock Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



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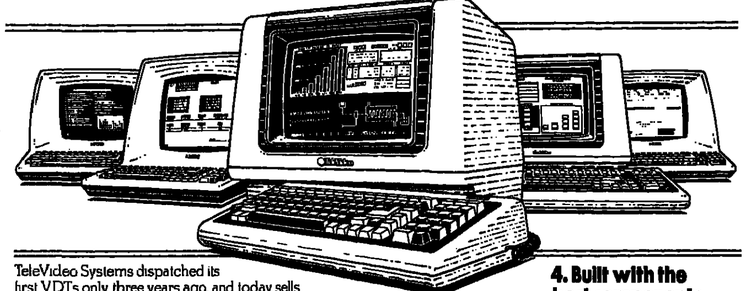

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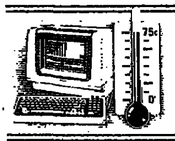

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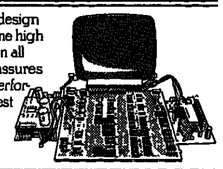

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MICRO NEWS

New Extel firm to sell HiNet

by Philip Hunter

THE sprouting market for networks of microcomputers linked by cable has grown a new shoot with the launch of a company by the UK-owned £100 million Extel Group. The company, called Digital Microsystems (DMS), will sell and support HiNet, the local area network developed in the US by Digital Microsystems Inc, which is now also owned by Extel.

HiNet uses flat cable with plugs for up to 30 microcomputers to be attached. A typical configuration of eight microcomputers costs about £28,000.

Only DMS eight- and 16-bit microcomputers can be admitted to the network, but any make of printer or VDU can be attached.

Prosper gets little brother

by Andrew Thomas

USERS of CP/M based micros can now utilise most of the facilities of ICL's Prosper mainframe financial modelling package. Dupont Computer Services has released Finplan, a financial planning system which bears an uncanny resemblance to Prosper.

Any similarity is purely intentional, as Finplan has been developed by ex-ICL people who were originally responsible for Prosper development. Alan Hadley of Dupont claims that Finplan scores over previously available financial packages for micros in that it has the capability to measure trends, and is easier to use than mainframe Prosper because of the help screens integrated in the system.

State leaves toy firms out in cold

by Jack Gee

THE French government's slowness in making its computer components industry a going concern has wrecked a plan to give a shot in the arm to the country's toymakers.

Roland Droguet, president of the National Toy Industry Association, announced "The State toy plan has died a natural death."

The plan, launched a year ago shortly after the Socialist government took office, was based on a promise of FFr 12 million – about £1 million – in public funds to introduce microchip technology into French toys.

Industry Minister Pierre Dreyfus, former head of the State run Renault motor company promised the cash if the toy-makers could get together with the government in establishing a Company for Innovative Aid (CIA).

This required an initial capital investment of FFr 2.5 million – about £200,000 – of which the toymakers were to put up FFr 1.6 million with the State providing the balance of FFr 900,000.

But when the CIA board met recently, the toy-makers got a message from the Treasury that the State cash would not be available.

Industrial sources say Dreyfus' successor Jean Pierre Chevenement, considered the project "a lame duck".

Droguet took the bad news on the chin and told his colleagues, "This preliminary work is not a waste of time. Manufacturers now understand they have to innovate in order to sell their products."

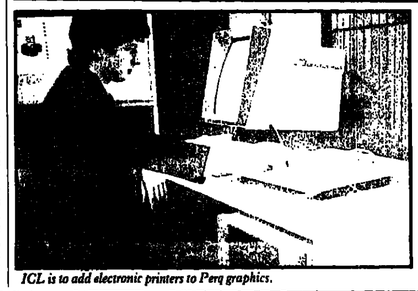
But without component technology from French industry – which means from the State – the toy-makers appear to be as helpless as their dolls and teddy bears.

Introduction of electronic gadgets in toys have pushed up imports to France from South-East Asia by half over the past year.

The 250 small and medium-sized French toy firms now sell only one toy abroad for every three which are imported.

■ The French government has run into a morass of delays in its attempts to get its electrical and computer industries under control and more importantly into profit. This has been caused by the many links between the two industries and foreign companies, the most significant of which is the ailing CII-Honeywell Bull. The government has been cutting these ties as fast as it can but is still a long way from a centrally-controlled electronics and computer industry.

Modern toys need electronics for success, says the industry.



ICL is to add electronic printers to Perq graphics.

ICL buys £1m of plotters for Perq

by Donald Kennett

ICL has ordered several hundred electrostatic printer plotters from Xerox' Versatec subsidiary for use with the Perq graphics workstation in a £1 million-plus deal.

ICL recently took over control of the development programme of the 18-month-old Perq from its original manufacturer, Three Rivers in the US. It wanted to put more resources into developing the machine's market appeal and into bringing down its manufacturing cost.

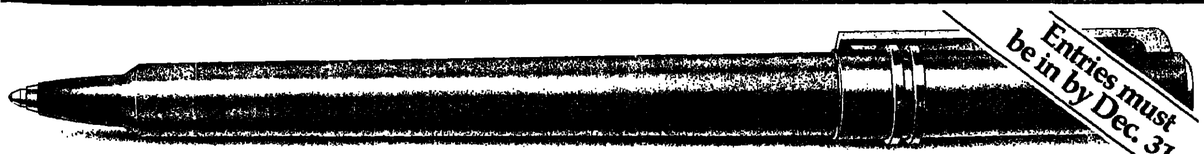
But despite aiming for design engineers as a major sector of its market, it had yet to offer a standard provision for hard copy output.

It has already shipped 200, against orders for 400, since it started manufacturing under the original agreement with Three Rivers at the beginning of this year, and has installed a further 180 for its own use.

ICL's contribution to the system also already includes a joint effort with the Science and Engineering Research Council to put Unix on the machine.

Having brought the Perq price down from an initial £25,000 to £20,000 for a half-megabyte version since it started making them in the UK, ICL is expecting "fairly extensive sales of Perq next year".

The order for the Versatec V80 medium-sized plotter, which sells for £6,312, is the largest Versatec has won in the UK. The device prints at up to 1,000 lines a minute or produces full-width plots, with a resolution of 200 dots per inch, at about two inches per second. This compares with the Perq's screen resolution of 1,024 by 768 pixels.



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Name_____ Position_____

Name & address of your company_____

Phone no._____

Type of terminal_____ Serial no. of Termin

Dec 11 pm 1:50

What type of computer is your terminal connected to?_____

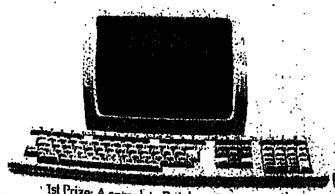
Would you like to receive the latest information on our personal computers? YES/NO

Do you use Digital's Accessories and Supplies Group? YES/NO

Is your Digital hardware on one of our Field Service contracts? YES/NO

Complete the following sentence in no more than 15 words: I expect a maintenance service contract for personal computers to_____

For full competition rules please send an s.a.e. to the competition address. CWB12



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PROFILE

Anonymous superstar of the software firmament

THIRTEEN years ago Frank Dodge was very pleased when a few Boston companies bought some programs he had written. He made $6,000.

Funnily enough he was probably as pleased about that as he will be in 1984 when, as he expects, his company's revenue passes the hundred million dollar milestone.

The computer world has produced not many well-known personalities, and within it the superstars of software are almost completely anonymous. Yet new technology is creating its meteoric successes as startling as either their industrial ancestors, the Henry Fords, or their contemporaries in the entertainment world, the Mick Jaggers and Marlon Brandos.

Even to the least money-oriented mind the figures are fairly astonishing. Net revenue of McCormack and Dodge in 1977 was $1,714,000; 1978, $3,167,000; 1979, $7,553,000; 1980, $15,672,000; 1981, $26,225,000. That makes a compounded annual growth rate of 85% over the last six years. Applications programs generally have been growing in that time at about 30 to 35%.

How has it been done?

Dodge is a Harvard maths graduate who became a high school teacher. He went to work for IBM in his native Massachusetts as a systems engineer and it was there he met Jim McCormack, who was working as a salesman. Connecticut-born McCormack was an accountant who had worked for General Motors and Touche Ross. They left IBM together in June 1969 to set up as consultants.

The real world in 1969 was not welcoming to would-be consultants. In fact, the real world had scarcely heard of software. The American economy was going through a bad patch and the two young men thrashed around for any income they could get. They visited 20 Boston companies in search of instant cash. Finding they had priced their programs too high they cut drastically and demanded that the firms decide at once.

"Eleven of them said okay. So we could eat again. That was interesting, because now we realised we could actually sell the products."

But working from a very small office with still only a precarious inflow of cash neither felt there was going to be much of a future for them. In May 1970 they got a mailing list of IBM sites and sent out 1,000 letters. The man who gave them the list told them it would never work. They were offering fixed assets programs at three or four hundred dollars each. This time they got 19 responses. Encouraged, they sought out other lists and next time sent 40,000 letters.

"By the end of that year we knew at least that we could survive. We knew we could sell package programs in quite large quantities provided the price was kept low, just as cars had been sold."

In 1972 the fixed assets system was rewritten with substantial enhancements and remarketed at a slightly higher price, but still sold by direct mailing. In the next two years the partners took on four staff, all from systems backgrounds, to help them develop an accounts payable package.

But they were still operating from two small rooms. "These days it seems everyone wants to have his own office. If they could only have seen us then!"

The mid-Seventies were a period both of rapidly rising prices and of rapid technological advance. They had to adapt. So in 1974 they dropped direct mailing and began to sell by onsite presentation. Dodge was the salesman for the accounts payable system. By then it was a nationwide concern.

At the same time many of the top companies were turning away from the idea of in-house systems development.

DODGE . . . "I didn't get into this for the money".

"By about 1976 there was such a large backlog of systems to be installed and the packages available were becoming so good and the cost of hiring good programmers, if you could get them, *was going up and up, a lot of firms* changed their philosophy from do-it-yourself to farm-it-out."

McCormack and Dodge started advertising themselves in 1977. "It was not that we had changed our approach. Our first priority was always and will always be the quality of the product. But by then we were getting into a big league where we simply could no longer rely on word-of-mouth and correspondence."

By the time the general ledgers system was introduced in 1977, the staff had increased to 20. The partners committed themselves to updating all their work every two-and-a-half years. They decided that the speed of change made this unavoidable. Now the fixed assets system is on version five, accounts payable version four.

They are still committed to the use of the industry's standard language Cobol, but Dodge said they were working with a new set of software tools which would have a dramatic impact on development schedules. Two-year tasks could be cut to two months, using a new prototyping technique which the company was keeping secret. In this way the typical site having a three- or four-year backlog could come to terms with its problems.

Cobol programmers would have *either to move into systems* analysis or into other more machine-linked languages in order to survive, he argued. "Otherwise they will die out like the dinosaurs."

Every year is a critical year for the software entrepreneur, according to Dodge, and the next revolutions to take place will be those of colour graphics and the mainframe-micro interface.

"It's already started and there are going to be some very exciting changes in that area soon."

So back to the original question, the secret of success? "I still go and talk to the users. I try to keep them happy. I find out what they want. You can't buy time by delegation. You may save a bit of time today but a whole new set of problems will emerge tomorrow. I didn't get into this for the money but to get a reputation for producing something good."

Still, a $40 million annual turnover is all right as a by-product.

PLATFORM

The author is director of the National Consumer Council, and before that was the first director of consumer affairs at the Office of Fair Trading.

Revolution in banking must be led by consumers' needs

"WILL consumers be prepared to pay the price for new technology in banking?" This was the question put by a banker at an IT82 conference in London. It came as a surprise to those of us who thought that cost reduction was one of the main benefits that IT would bring.

How is IT affecting banking? What will the new developments mean for consumers? From my point of view as a consumer, the three most significant actual or potential developments are cash dispensers; electronic funds transfer at point-of-sale, terminals in shops and garages; and home banking via Prestel or cable.

What benefits will cash dispensers, point-of-sale terminals and home banking bring to consumers? First, they will overthrow the twin tyrannies of place and time. It is no longer necessary for the bank customer to be at a particular place within a particular period of time to get hold of his or her own money.

The revolution will not be complete until we have home banking. It was announced recently that the Nottingham Building Society is launching what is in effect a home banking service on Prestel. Ten thousand of its customers will be supplied with free keyboards and adapters which can be used with conventional TV sets.

These are some of the possible benefits for consumers. What are the dangers? First, the new IT-based systems should add to the range of cash withdrawal and payment methods available to the consumer. The consumer should not be forced out of using cash or cheques, and should have more choice, not less.

Second, the new systems must match traditional banking in the standards of privacy the consumer can expect. The principle that the consumer, and only the consumer, has the right to authorise disclosure of his or her personal financial information should remain paramount, but it may need a fresh interpretation.

Third, the new systems must offer the consumer an "audit trail", so that he or she can check that the bank account is being correctly operated. One UK bank has used and continues to use cash dispensers which do not provide the consumer with a transaction record. This is inexcusable. Computers may or may not be infallible, but everyone knows that mistakes occur.

Fourth, the new systems must offer the maximum protection against fraud and abuse. It is quite unacceptable for banks to hold the consumer responsible for losses that are not his or her fault.

Fifth, while there is every reason for differential charging for different delivery systems, to reflect differential costs, consumers should be told in advance what these charges are. Bank charges have been – and continue to be – a maze of concealed cross-subsidisation, to the extent that even the banks themselves do not seem to know what their services cost.

Sixth, without restricting competition, the new systems should be developed with the maximum mutual compatibility. It is understandable that the cash dispenser in, say, the wall of a Lloyds Bank should serve only Lloyds customers, but what about cash dispensers in factories and hospitals? What about point-of-sale terminals in shops? Is any major retailer going to install a system unique to one bank and risk alienating customers who have accounts at other banks?

Seventh, the new systems should not be restricted to banks. Any new networks should be designed so that all types of financial institutions can participate.

The consumer is the key to the success of the new IT-based systems, not just a piece of peripheral software. If there is to be a revolution in retail banking, it should be one that is led by consumers' needs.

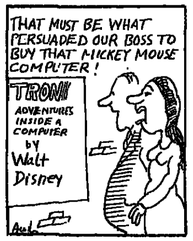
Jeremy Mitchell

DOWNTIME

A question of pedigree

IT is well-known in chip-making circles that the processes involved more closely resemble a black, and arcane art, than applied science. But even so a statement made recently in the august Wall Street Journal must have caused consternation, if not outright indignation, to well in the collective breasts of Western chip-makers.

The Journal said, quoting a senior official from one of Japan's *extremely rare nationalised industries*: "The Japanese are a people that can manufacture a product of uniformity and superior quality because the Japanese are a race of completely pure blood, not a mongrelised race as in the US."



Although I don't think the remark should be taken too seriously, the guy has probably seen the first few episodes of James Clavell's Shogun, now on the box.

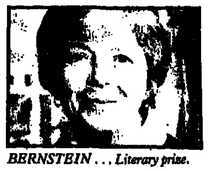
Literary occasion

IT was a thoroughly uncomputer like event, apart from the ubiquitous Clive himself – but then it was his event.

All the literary lions were there, figures from the ghost of your writer's Eng-Lit degree.

There are now about six major literary awards each year for fiction, but none until now was given for unpublished work.

Clive Sinclair, charismatic ruler of Sinclair Research, has stepped into the gap with an award of £5,000. The award is in one sense restrictive, however: only works of current social or political significance need be submitted.



BERNSTEIN . . . Literary prize.

This year the first prize went to Hilda Bernstein, a refugee from Africa, who wrote a book about her experiences of white dissent in that bipartite country.

No other prize was intended, but such was the standard of the entries that Clive shelled out three other prizes: £2,000 for the runner-up, and two consolation prizes of £500.

Cut down to size

SOME books are compulsive status symbols, but are never read. Take Finnegans Wake by James Joyce for example. Everyone agrees it is a towering monument of prose style – so towering in fact that nobody can see its end.

Another book that we all love to own, but hate to read is the World Book Encyclopaedia.

Now an electronic version is at last, thankfully, being published that cuts the work down to size.

Compuserve is the company performing this valuable public service, which frees bookshelf space for much-read collections of thrillers and romances.

Automating the Tories

AN anonymous admirer of Maggie and monetarism has bought the Conservative Party an ICL ME29 computer. It will be used to find likely supporters and write canvassing letters to them, as has been done for some years in the US during presidential campaigns.

Conservative candidates have often found door-to-door canvassing distasteful, and the prospect of doing it by computer must appeal.

Then they can get on with their important wining and dining.

While canvassing for the recent Peckham by-election, one Tory agent showed some quick thinking.

He wandered up to an open letter-box only to find that his Labour opponent had beaten him to it, as there was a red leaflet hanging out.

Our Tory was just about to remove the red menace and replace it with his blue blurb when he noticed to his horror that he had trodden in a bed of insect concrete and ruined it.

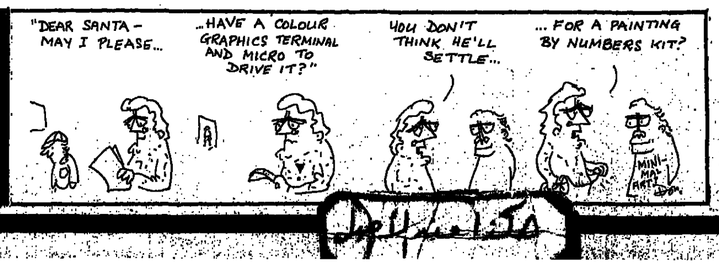
He ran off leaving the Labour leaflet dangling from the letter-box as an admission of guilt.

Cibol

10 YEARS AGO

FROM COMPUTER WEEKLY OF DECEMBER 7, 1972: The first Univac 1110 in the UK was ordered by the Nationwide Building Society. The system was worth more than £2 million . . . ICL announced its future strategy which would mean becoming independent of direct government aid . . . . The computer industry would be the third largest in the world by 1980, said Trade Minister Peter Walker.

Liveware File by Don



ComputerWeekly
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, December 9, 1982

1983 – the year to get it together

THE IT82 steering committee has every reason to feel proud as its showcase event takes place at London's Barbican Centre this week. Prime Minister Margaret Thatcher agreed to make the keynote address, and a formidable gathering of leading lights has graced the conference hall over the two-day affair.

As a publicity campaign Information Technology Year has been a marked success. There are, of course, those who would say that greater public awareness of technology was inevitable, what with microcomputers flooding our homes and becoming the darlings of television, radio, and newspaper commentators. But those people would be the first to criticise if IT Year had never happened.

That is not to say that the year has been an unparalleled success. There has been too much hyperbole concerning the promise of technology. And by making it all sound so easy the proponents of IT Year have no doubt oversimplified the problems, which could be a disservice in the long term.

But let us not quibble over the detail. IT Year has done its job in setting the scene. 1983 must surely be the year when the nation's decision-makers get down to the nitty gritty of making sure the UK computer industry plays an important role in the world economy.

ICL managing director Robb Wilmot put his finger on the problem last week when he said that we must not *concentrate too much on the technology* at the expense of how to convert the technological initiative into economic benefit (see page 3). What is important, he said, is an economic infrastructure similar to that in the Japanese economy, so that technological advances get translated into economic growth.

For all the action this year, one is still left with the impression of a somewhat disjointed governmental approach to information technology. January brought the announcement that information technology centres, or ITECS, would be set up for unemployed 16- to 19-year-olds; the Chancellor of the Exchequer announced his £130 million "innovation package" in March; a reluctant government published its White Paper on privacy, and legislation *is promised* in this session of Parliament; *British* Telecom was put on course for the private sector; the Hunt Committee made its recommendations for cabling Britain; and the Alvey Committee report was published and is awaiting a governmental decision.

But these acts, and others, stand on their own. The debate in 1983 shoud be how to bring them together into an overall strategy for UK's information technology industry. That may be done in tandem with the rest of Europe, or we may go it alone. But the time for hard decisions has just begun.

Turnaround at ICL

THREE cheers for ICL. The remarkable turnaround in ICL's financial position is now official, with 1982 pre-tax profits at £23.7 million before tax compared with a £49.8 million loss the prevoius year.

The management's faith in its future has been further confirmed by the decision to go ahead with the £100 million rights issue first predicted in our September 23 issue. Already three large shareholders – the Post Office Staff Superannuation Fund, Prudential, and Legal and General – have indicated they will take up the issue, and there is little doubt it will be fully subscribed.

Chairman Sir Christopher Laidlaw is predictably cautious about 1983, saying that 1983 will be "a year of transition for our company".

ICL's move to profitability is mainly the result of cost savings, with revenues rising a mere 1% over the previous year. The per cent of turnover from the UK market rose to 57% from 55%, and it is clear the company must increase the level of its export business.

But we have to agree with Laidlaw that the platform for 1983 is there.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Ewin Malpass of Stratford-upon-Avon, who wins £5.

Computers, we must admit, do little to excite the visual imagination. They do not move, or make much noise, and when they do, it's rather an exaggeration to claim, as some people do nowadays, that they are all-singing, all-dancing machines. They do none of these things. They simply sit, think and watch.

Systems International

LETTERS

Quart of information into a pint pot

I SEE that this year's second inventor (CW, November 25) thinks he has a method of compressing gigabytes of information into 2.5 Kbytes (first was "coding expert" Bart Khan of Micro Xeno, who proposed it to get over the difficulty that his proposed "charged packet memory" would lose information when powered down).

Both inventors are far too modest since if a quart of information can be got into a pint pot then their process can be used in two stages to get half a gallon into a pint pot or indeed in any required number of million-to-one compression stages to hold the contents of every information store that exists or ever will exist in 2.5 Kbytes.

On the whole I feel this prospect is rather less likely than a working perpetual motion machine and indeed anyone who can solve your puzzler *should have little difficulty* in proving the following: "No algorithm can exist which can compress *any* Mbit bit-pattern into a shorter pattern (say of Nbits) in such a way that the original can be regenerated by an algorithm which has the shorter pattern as its sole input".

The shorter pattern must indicate the coding method (if this varies).

Yours in expectation of a *third* inventor.

M. R. DOLBEAR
Weybridge
Surrey.

Chessboard problem

THE Puzzler (CW, November 11) concerning the distribution of eight Queens yielding a prescribed number of squares on an 8x8 chessboard brings to mind the following results which readers with appropriate interests in computing, programming and chess playing may like to reproduce, complete with graphs!

Problem: What is the minimum number, f(n), of Queens that can be placed on an nxn chessboard so that no Queen is guarding any other Queen and so that the entire board is guarded by all of the Queens?

Answer:

n	5	6	7	8	9	10	11	12	13	14	15	16	17
f(n)	3	4	5	5	5	5	6	7	8	9	9	9	

Problem: What is the minimum number of pieces of the same kind that can be placed on an 8x8 chessboard so that every square is guarded by at least one piece?

Answer:

Queens	Knights*	Bishops
5	12	8

The condition that no piece is guarding any other piece is not part of the problem, it is satisfied by the Queens and Bishops, but not by the Knights.

Further correspondence on these and related problems would be appreciated and replied to at length.

M. R. MUDGE
Department of Mathematics
University of Aston
Gosta Green
Birmingham

Mumps Ansi standard

WITH reference to the letters from David Muxworthy and P. F. Wrexham (CW, November 18), I would like to point out that Mumps has an Ansi standard (XII.1-1977) and it is possible to write

S [RT] X="Why don't more",
Y="people use MUMPS" W
[RITE] X,Y

RAY HITCHINS
Oxford Regional Health Authority

Role of exams board

IN YOUR recruitment and education supplement (CW, November 11), Margaret Park appeared to confuse the role of the NCC as a commercial provider of training material, with that of the Systems Analysis Examinations Board, which is responsible for validating courses and administering examinations.

The board is administered by the BCS, and its members represent the Society, the Department of Education and Science and the Scottish Education Department, the NCC and teachers in institutions of further and higher education.

The NCC has not submitted proposals about how course material should be updated. A sub-committee of the board has prepared proposals for a new syllabus which, when agreed by the board, will be discussed with examiners and teachers of the course.

The NCC prepares material from time to time which it sells on a commercial basis to those institutions which run the course, should they wish to buy it. Purchase of NCC's material is not however, a condition of approval for examination.

The syllabus of the Systems Analysis Examinations Board is taught full-time or part-time in a variety of forms by industry and education institutions throughout the UK and in same overseas countries. To date, between 11,000 and 12,000 analysts have passed the examination and hold the certificate.

D. A. YEATES
Chairman
Systems Analy· Examinations Board
London W1.

Unix porting for micros

I AM writing about your article "UK firm runs Unix 7 on 68000 micro" (CW, November 18), and I would like to emphasise that the necessary porting to enable Bleasdale Computer Systems to offer Unix on its new machine was carried out by Root Computers.

This particular port, completed in just three days by Root, was the first port undertaken by the London-based company.

However, since the announcement of Root's 68000 Unix porting capabilities, several other major micro manufacturers have shown considerable interest in the service.

JEREMY BIGGS
PR Consultant
Root Computers

Smear campaign allegations

I AM extremely concerned about implications in Kevin Cahill's article Dirty Tricks hit Science Centre (CW, November 25) and statements in it attributed to the Royal Society. The article implies that the allegations of a "smear" campaign against the IIASA and links with the US Central Intelligence Agency were initiated by this Society. This is not true.

They were made by your correspondent to Mr Cooper, our Press officer (he is not responsible, as stated, for IIASA's affairs). We do not know the source of these claims which Mr Cahill put to us *and, with no other information* available to us, not even the *Parade* article referred to, it is not possible to judge the truth or otherwise of Mr Cahill's allegations: as such they remain.

Erroneous information on IIASA or its work is not, of course, in anyone's interests, especially at this difficult period for the Institute, and we would wish to see any such errors corrected. On this basis Mr Cooper provided your correspondent with information on the Institute and UK involvement since its founding, at the Royal Society, in 1972.

Dr R. W. J. KRAY
Executive Secretary
The Royal Society
London SW1

Middle East opportunities

HAVING READ the article on overseas employment (CW, November 11), I felt I had to point out how misleading it was in connection with the Middle East.

While not being in a position to speak on the area as a whole, I do have experience of the United Arab Emirates, one of the most progressive countries in the region. It is far from being a "hostile environment" and "very much the domain of the single man".

There are a number of successful businesswomen here, both Arab and expatriate.

Several of the government offices now have local women in fairly senior positions, a situation that will increase if the number of local girls at the university here is anything to judge by. For those women who are not working there are numerous morning activities and an abundance of play schools.

There are really no restrictions here for women and in many ways one can move more freely than most other places in the world, certainly from the aspect of personal safety.

To sum up, as long as one respects the laws of the land and is prepared to work hard this is a land of great opportunity.

JANE ROWLAND
Special Projects Co-ordinator
Datamation Systems
Dubai
United Arab Emirates

Course in salesmanship

I REFER to the report (CW, November 25) regarding the DP training for sales staff course to be set up by the Polytechnic of North London and the Manpower Services Commission.

A similar course, Information Technology and Salesmanship, is currently being held at the Polytechnic of the South Bank under the MSC Tops scheme. This is a 12-week course combining the study of microcomputers, programming, word processing, business systems and communications with the fundamentals of marketing and sales skills.

The students have a wide variety of business experience and when the course ends in February hope to find work in the microcomputer field. If any prospective employer cares to write to me I will ensure that the information is passed on.

FRANK L. BOWN
124 Stoneleigh Park Road,
Ewell, Epsom,
Surrey KT19 0RG

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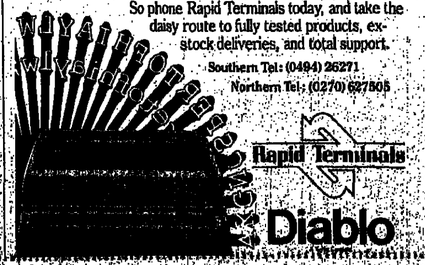


Rapid Terminals
Diablo

WORKPLACE

". . . and I have performed those routines I ought not to have performed."

For spies, solving the riddle of numbers is a Prime consideration

THE SURNAME of convicted spy Geoffrey Prime is rather apt, because the riddle of prime numbers is fundamental to cryptography, the transformation of messages into a form unintelligible except to people with the decoding formula.

Prime exposed the vulnerability of top level security. And the prime numbers are in a sense the last bastion of top level security.

Since the 1930s there has been a battle between the code makers and the code crackers, and therefore the techniques employed have rapidly become more complex . . . so complex in fact that the NATO decoding centre in Cheltenham has one of the largest computer systems in Europe.

Prime numbers are the whole numbers, or integers, that are indivisible except by one and by themselves. The first eight are 1, 2, 3, 5, 7, 11, 13, 17.

Nobody has yet discovered a formula that will generate the prime numbers in an ascending sequence, and the only known way of finding prime numbers is by brute force trial and error.

The prime numbers therefore give an infallible way of encoding messages which only holders of the key can unfold. The largest known prime number has about 50 digits.

The method of prime number encryption is based on multiplying two large known prime numbers with fewer than 50 digits to give a number larger than 50 digits.

Because of the vast number of possible combinations, it is then impossible to work back to, or factor out the original numbers.

Of course if someone discovered the formula that generates prime numbers (if such a formula exists) then the security world would be thrown into chaos. Many claims have been made by mathematicians who think they have discovered the formula, but on close scrutiny they have been shown to be bogus.

It has been claimed that Russian mathematicians have found a solution to this prime number problem. If this is the case, then NATO is going to have to discover new encryption techniques.

Old languages lie dying as the new are lauded

THERE is now little doubt that conventional programming languages like Fortran and Cobol are terminally ill. But after ruling the computer industry for 20 years they have developed great resilience, and look likely to splutter on into the 1990s, particularly in large commercial IBM installations.

Meanwhile the next generation of languages has just been born into the world after being nurtured in the womb of the academic community. The embryo of this next generation is the belief that languages should return to the mathematical principles that underlie them.

Expressions like X = X + 1 which simply add one to the current value of X are the main meal of conventional languages. This is clearly a pollution of mathematics since expressions on both sides of the equal sign are supposed to be equal at one point in time and not at slightly different times. Therefore some languages like Basic use X+1 X for the same operation. But the effect is the same.

Fortran, Cobol, Basic and other old generation languages are called procedural, because they require every miniscule detail of a problem to be spelled out. The compiler merely converts directly into lower level machine code for execution.

Most big companies now recognise that procedural languages will eventually die. Mike Watson, ICL's technical director, said at a recent conference on the future of mainframe computers: "Non-procedural languages and self-generating program facilities will be essential for sheer survival let alone growth." Such comments are becoming commonplace.

ICL has secured European marketing and development rights for the Perq personal computer from the US Three Rivers company. The Perq is almost as powerful as a Digital Equipment Vax, and is used for dedicated technical applications. ICL is now adapting it to run Lisp.

The new generation has really split into two. The program generators for straight well-defined commercial applications like payroll are gradually ousting Cobol from its throne. But for scientific, engineering and the new artificial intelligence applications, there is still need for a more direct dialogue with the computer. Two kinds of language are vying for attention: functional languages, such as Lisp, widely used for artificial intelligence in the US, and so-called logic languages like Prolog, which is the language favoured by the Japanese for the fifth generation project.

Academics have argued bitterly among themselves about the merits of the two language classes, which makes one suspect they are really very similar. But there definitely are differences.

Clarity, for one. A Prolog program is far easier to read than a Lisp program. Yet the odd thing is that Lisp supporters boast how easy to read their programs are, which is another danger sign. Whenever anyone says their language is easy to read, what they really mean is that it is easy for them to read after a year of experience.

BACKUS . . . Disowning his brainchild Fortran for functional languages

Lisp was by far the earliest of the new languages, being conceived in 1960 by John McCarthy, a computer scientist at the Massachusetts Institute of Technology. The idea was to dispense with the ides of assigning a value to a symbol such as X and manipulating that value in mathematical expressions.

In Lisp, the computer has to be told what each piece of data is for before it is entered. If calculating the area of a rectangle, for example, the computer must be told that the length and breadth, which are multiplied to give the area, are single dimensional, and that the area is two dimensional.

The ability to manipulate lists of information make Lisp number one among artificial intelligence designers. But for 17 years Lisp was strictly confined to the backwaters of academia. Then in 1977 it received the perfect pick-up.

The idea of functional programming which lay behind it was endorsed by a computer scientist called John Backus, acknowledged as the father of Fortran. If programmers were to write manageable programs in the future, he said, the ideas suggested by the grammarians of computer science, like himself, had to be taken further. Fortran and even the newer Pascal, could not be adapted to fit new standards, he said.

At a stroke, functional languages had been christened and canonised.

Hot on Lisp's heels are the logic languages, epitomised by Prolog. Logic languages are sometimes called algebraic because they are based on algebra rather than functions. Everything is related to something else that has already been defined. A typical Prolog statement is: "X is the husband of Y if X is married to Y and X is a man."

It is plain to see that Prolog is readable to outsiders, and for this reason it has been used for teaching children by Imperial College, where a lot of pioneering work in the language has been done.

Both Prolog and Lisp are difficult to use in their pure form, because of their lack of input/output and file manipulating facilities. For this reason, both have been corrupted in practice, with a version of Prolog known colloquially as dirty Prolog being used for development and teaching by Imperial College.

A mixture of Prolog and Fortran has been widely used for many applications including medicine and engineering in Hungary. Similarly a dirty version of Lisp has been used in all the US artificial intelligence systems.

Sceptics had begun to claim that neither Lisp nor Prolog could be used for anything practical unless mixed with conventional code. Lisp, for example, was not able to drive a graph plotter until recently, when the programming research group at Oxford University wrote a program in Lispkit to draw the elegant graphical designs of the Dutch artist Maurits Escher.

Changing requirements mean that operators can't be buried yet

Les King continues his series on changing job functions and titles.

IT has become fashionable in recent years to write off computer operations as a dying profession.

Certainly, the growth of real time working and microcomputers has reduced the need for specialist operators to load and run programs – this being done directly by the users – but the increasing sophistication of hardware, software and applications has expanded the role of the operations department to include new responsibilities such as systems programming, operations analysis and network control.

Network control, in particular, attracts a lot of computer operators

To find out more about this area of computer operations, I visited a major City installation where three IBM 4341 mainframes and two ITT front-end processors support a network of some 450 VDUs and remote printers.

To ensure maximum resilience and system availability, the whole network is switchable between mainframes and a six-strong hardware control team has full-time responsibility for monitoring and supporting the mainframes, the real time network, air conditioning, power supplies and general communications equipment including sophisticated telephone systems and online business information services.

The team's major area of activity is communications network control for which they employ three types of specialist.

The network co-ordinator is responsible for defining users' hardware requirements and carrying out environmental surveys to determine the best positioning of the equipment.

Having done this, the co-ordinator will order suitable private lines, also providing for public telephone service back-up, and will arrange hardware delivery, installation, testing, software changes (additions to CICS tables, etc) and user training.

The constant monitoring of the network is done by the network operator whose job is to identify and investigate problems, providing a first-level recovery service.

To assist in the task of problem investigation, a range of sophisticated diagnostic equipment is available including line signal-level testers and the Datascope, a device which enables the operator to "see" and record the data, including transmission control information, flowing through the line.

More complex technical problems are dealt with by network support technicians who, in addition to their in-depth specialist technical knowledge, must be able to undertake certain engineering functions such as the installation of new equipment or the replacement of circuit boards.

The principal object of the network control is to ensure that each user is provided with computer service, at all times.

In the event of a failure, an efficient network control team can implement alternative means of providing the service in minutes rather than hours or days.

Although the work is sometimes done by computer operators, growing sites usually find that network control becomes a full-time task requiring a range of specialist technical skills.

"We never had all this CICS and DLI1 when I was a lad."
"No, we had to make our own entertainment."

WATSON . . . Non-procedural languages vital for survival.

Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

ONE
TWO
SIX +
NINE

THIS simple alphametic is rendered unique by five fairly logical constraints: (a) ONE is less than TWO, (b) TWO is less than SIX, (c) TWO is divisible by 2, (d) SIX is divisible by 6, (e) NINE is divisible by 9.

See if you can reconstruct the original addition sum by turning to page 45 for the solution.

PEOPLE

Shroeter

ITT moves Euro comms base to UK

ITT's European Data Communications Centre has moved from Munich to Colnbrook, close to London's Heathrow Airport. Managed by **Otto Shroeter**, the centre will serve all distributors of ITT's data communications equipment in Europe.

The centre's activities will cover four main areas: Product planning and forecasting; product management and contract administration; documentation and software distribution; and product engineering and support.

A US operations group will keep in close contact with American houses and suppliers. And for international accounts, there will be a manager to co-ordinate all sales, support and maintenance activities.

■ **Norbain Micro**, the company recently launched by the Norbain Electronics group, has named **Ian Smith** as sales and marketing director. He was previously marketing manager of Micro-C, micro arm of the Curry's group.

■ Software publisher **Dataview** has appointed **David Fogwill** as software products saleaman, to cover the company's dealer network in the UK. He formerly worked for Sheffield Computer Centre.

■ **Gambica**, the association for the instrumentation, control and automation industry in the UK, has named **Derek Bond** chairman of the transducer, group. Bond is engineering director at Bell and Howell.

■ **Roger Bulkeley** (above) has joined Action Computer Supplies as sales office manager. He was formerly with GTR Directories, where he was a telephone sales executive for British Telecom Yellow Pages.

■ **Celdis** has promoted **Steve Wainwright** (above) to field sales manager. He joined the company in 1979 as field sales engineer for Essex, East Anglia and East London and became regional sales manager for the North a year later.

■ **Paul Davis** has joined Omicron Management Systems as sales manager for its Power Systems range. He was previously with RTZ Computer Services for three years as a salesman.

■ **Cyril Townsend** has been appointed chairman of National Westminster Insurance Services on the retirement of Bill Hewitt. He also becomes a director of Natwest's Outer London Regional Board and of Centre-file, the bank's computer bureau subsidiary, of which he was managing director from 1968-74. Townsend retires as general manager of Natwest's management services division and is succeeded by **Gordon Reeve**, regional executive director, Outer London region.

■ **Tom Barry** has joined Peachtree Software International as senior analyst/programmer. He joins the company from Scorpion Computing, where he was in charge of software development.

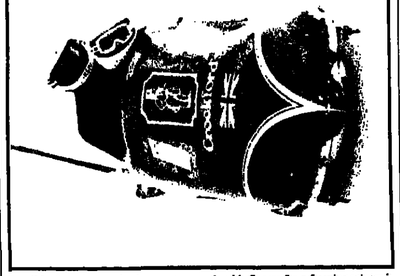
■ **CMC's** marketing manager for health authorities in the Southern region is **Chris Lloyd**. He was formerly managing director of two companies – Datawest and Business Data Management.

■ **Allan Currier** has been promoted to national sales manager for Harris Information Systems' international division. He has been with the company for five years, having previously worked for Modular Computer Systems, Varian Data Machines, Gore and Associates, and Ferranti.

■ After almost 20 years as BBC science correspondent, **David Wilson** has been appointed manager, BBC Teletext.

■ **Rediffusion Computers** has promoted **Paul Bennett** to supervisor for the South Central branch. He joined the company two years ago as a trainee engineer.

■ **Terence Joint** (above) has been appointed managing director of PM Associates. He has been in the computer services industry for 13 years, and before that worked in the project engineering section of the then British European Airways.



Possibly the only man in the country crossing his fingers for a freezing winter is Shubrook's contract programmer Norman Donachie. He has been a member of the British bobsleigh team for the past two seasons, competing in the European and world championships as a brakeman. This winter he intends to compete in the British championships in Lake Placid, US, as the driver of a two-man bobsleigh. Our picture shows Donachie in the driver's seat in last season's British championships at St Moritz.

■ **Computer Automation** has appointed **David Tose** as sales and marketing manager of the industrial products division. He has worked for the company for nearly eight years, and was previously support marketing manager.

■ **Beta**, the Business Equipment Trade Association, has elected four new Council members: **Gordon Calvert**, product compliance and safety manager with Digital Equipment; **John Formby**, managing director of Roneo Alcatel's UK sales operation; **Jim Foster**, director of management systems at IBM UK; and **Roger Fuller**, national sales manager at Sony.

■ **Patrick Sweeney** has been appointed vice-president of international manufacturing at Wang Laboratories. He joined the company in 1980 and has held various management positions, including general manager of Wang Ireland and director of international manufacturing.

■ **Michael Grant** (below) has been named manager of marketing programs, Europe, at Prime Computer. He was previously director of corporate communications at the company's headquarters in Natick. He now returns to the UK, to work from Prime's European headquarters in Hounslow, Middlesex.

■ **Ian Priestley**, former product marketing manager for Sintrom Electronics, has joined Perex as marketing director. He has been with the Sintrom Group for the past eight years, working within Sintrom Electronics and Perex, initially as a systems technician with Perex in 1974. **Gary Green**, Sintrom Electronics' product specialist, has joined Perex as a European marketing executive. Joining Perex as a major account executive is **Andrew Hill**, who has been in the telecommunications industry for 12 years.

■ BICC-Vero Electronics has named **Brian Gay** director. He is general manager of the company's packaging division. He joined Vero Electronics in 1965 and progressed from sales office manager to sales director, taking up his position with BICC-Vero packaging on formation of the BICC-Vero Electronics group of companies.

■ **Trevor Sokell** has been appointed managing director of Network Technology and a main board director of Information Technology, the holding company which co-ordinates and manages three subsidiaries: OTL (Office Technology), NTL (Network Technology) and CTL (Computer Technology). He joins the company from Menzies Communications, where he was managing director.

■ Chairman and managing director of Irish consultancy IMPC **Pat Rafter** has been appointed to the board at Data Packaging, based in Mullinger. Rafter is a Fellow of the Irish Computer Society and a member of the Marketing Institute of Ireland.

■ Marketing manager at Lucas Kienzle Instruments is **John Roberts**, formerly in design and development at Lucas CAV.

DIARY

DECEMBER 13

Programming – A cottage industry, by Steve Shirley, founder of F International. BCS Bedfordshire branch. Crest Motel, Luton. 7.30.

Roll over Beethoven? – demonstration of the application of computers to musical composition. IDPM Scottish branch. University of Strathclyde. 7.30.

DECEMBER 14

Local area networks. BCS Word Processing and Office Automation Specialist Group. Board Room, London School of Economics, Houghton Street, London WC2. Application forms from L. Wright, treasurer, WP & Office Automation Specialist Group, 101 New Street Hill, Sundridge Park, Bromley, Kent.

Information Technology Year, by Ken Barnes, project director of IT82. Honeywell, Maple Room, Fairfield Halls, Croydon. Admission free. 7.15.

History of British computers. BCS N. Staffs branch. N. Staffs Poly, Stafford. 8.00.

DECEMBER 15

Social evening. IDPM Northwestern branch. The Manchester Club, 50 Spring Gardens, off King Street, Manchester. 6.30.

DECEMBER 20-21

The role of computational geometry in computer aided design-workshop. BCS Formal Aspects of Computing Science Group. Imperial College, London SW7.

JANUARY 10

Voice input and output. BCS East Anglian branch. Norwich City College of Higher and Further Education, Ipswich Road, Norwich. 7.00.

JANUARY 11

Automotive micros. BCS Harlow branch. The Norfolk Room, The Saxon Inn, Southern Way, Harlow. 7.30.

Micros – the changing role of DP management. BCS London North-west branch. Bull Hotel, Gerrards Cross. 7.30.

Meeting. BCS Kent branch. Department of Computing, University of Kent, Canterbury. 7.30.

JANUARY 12

Auditing with the computer. Joint meeting of BCS Auditing by Computer Group and the Institute of Internal Auditors. The Royal Lancaster Hotel, Lancaster Terrace, London. All-day event.

Book display and microcomputer demonstrations. BCS Bristol branch. St Vincent's Rocks Hotel, Clifton. 7.15.

Computing with the Woolwich. BCS Kingston Branch. Conference Room 1, Kingston Polytechnic, Penrhyn Road, Kingston, Surrey. 7.15.

The communications quagmire. BCS North London branch. West Lodge Hotel, Cockfosters. 8.00.

CONFERENCES

■ The eighth New Zealand Computer Conference will be held in Wellington from September 12-16, 1983. The theme is "Entering the information age," and abstracts of up to 200 words on proposed papers are called for before March 1. The following or related topics will be considered: Coping with the transition; managing the technology; protecting the individual; and living with the computer.

Send abstracts to the chairman, Papers Committee, Eighth New Zealand Computer Conference, PO Box 27-344, Wellington, New Zealand.

■ The tenth International Congress on Cybernetics is to be held at Namur, Belgium in August, 1983. The five-day event will include fundamentals of cybernetics; cybernetics, law and society; the notion of intelligence in cybernetics; and man in a high technology environment. The congress will take the form of a symposium, whereby a moderator, assisted by leading speakers, will develop the various aspects of the subject and conduct discussions on the ideas developed. Details from the Association Internationale de Cybernetique, Palais des Expositions, Place André Ryckmans, B-50000, Namur, Belgium.

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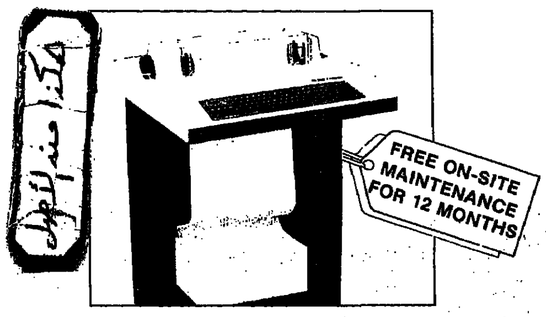

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COMPUTERISED NEWS

Martyn Harris takes a look at the prospects for the new television station's computerised news gathering system

Peace and quiet in the news room at the Channel Four studios

Channel Four has the first completely computerised TV newsroom in Europe.

THE first thing you notice about the Channel Four newsroom at ITN is the astonishing *quiet*. Most broadcast newsrooms operate in an incredible row of screaming telephones, clattering typewriters, ynnimering teleprinters, urgent bings and buzzes from the wire services and the Roedean accents of gorgeous PAs shrieking cryptic messages of anguish like "Where the hell is the 5.45 Mugabe VTR from Visnews?"

But Channel Four is peaceful. In fact it is positively serene. There are rows and rows of milky-white terminals on milky-white, ergonomically designed formica desks. Keyboards go pitter-patter, audio alarms from the wire services go bloop-bloop ever so softly, and feet go shush-shush in the Berber-twist oatmeal carpet.

Admittedly it is only 12 o'clock and the newsroom has hardly started to warm up for the 7pm programme, but you can hear Sarah Hogg, the economics editor, having a whispered argument across the room, and yes, I think that's Peter Sissons of rebellious clipboard fame who is having a quiet joke in the corner. Pitter-patter, shush-ahush, bloop-bloop.

> **"There was a rump in the editorial department who thought computers were slowing things down, and there are still a few who would probably prefer typewriters."**

David Lyon, the man who put it all together is very proud of it. It is the first completely computerised TV newsroom in Europe.

Lyon is a charming, soft-spoken American with 20-odd years in the computer business, right back to stone-age stuff like English Electric and ICT.

Is he a software man or an engineer?

"I'm a zoologist," he says – and is apparently serious. As assistant general manager in charge of production Lyon looks after most of the non-editorial side of ITN.

He is more interested in what the system does than what it is, but gives a quick run-down of the hardware. There are 40 or so Datamedia dumb terminals, supplied by Mellordata, all running off two Onyx 8002 16-bit microcomputers, bought from Keen Computers and housed in a Portakabin in the back yard.

Each micro is capable of handling all 40 terminals at once, and in case of breakdown they can all be switched to a single machine in six minutes. A third micro is on permanent standby and Lyon has another two micros to fall back on.

The terminals are routed to the micros via eight front-end data concentrators or multiplexers built by Basys, the San Jose company responsible for designing the whole system. The central software package, known as Newsfury, is written in C and runs under the Unix operating system.

So much for the nuts and bolts; but to understand what the system does it is necessary to digress briefly into the way newsrooms operate. Contrary to the notion most people have of teams of hard-nosed investigative reporters scouring the earth for stories, most newsrooms rely almost entirely for their bread and butter output on the news agencies or wire services like Reuter and Press Association.

Broadcast newsrooms, in fact, are essentially clearing houses for secondhand information from wire services, though few like to admit it publicly. Typically they have a dozen or so agency printers churning out copy which is ripped off and sorted by a copy taster and fed to journalists or sub-editors who rewrite, expand or shrink it into shape for final approval by a chief sub.

It is then usually typed into four copies: one for the chief sub, one for the file, one for the newsreader (the script) and one for the teleprompter roll. Rip-and-read journalism is frowned upon, but just listen to ITN and BBC news for the same paragraphs to pop up. You can bet they're from Reuter.

The inherent problems of the system are: The amount of paper it generates (which is truly vast); the fact that things get lost quite easily; the amount of retyping that has to be done and finally, because of the hierarchical structure of the newsroom, the difficulty of back-checking a story to its source.

According to Derrik Mercer, editor of Channel Four news, the Newsfury system was bought primarily "as a way to read the wire services". Channel Four uses Reuter, UPI, Associated Press and Press Association A and B wires. (A is mostly hard political news, B is violent crime and naughty vicars.) It is also planning to connect Agence France Presse and the Reuter economic service.

All the wires are routed directly into the system and on to a 20-Mbyte Winchester disc (where they account for 60% of the information stored). Each wire service can be accessed from any terminal and the urgent stories or "snaps" are flashed on every screen in the newsroom.

Both Mercer and Lyon agree, however, that Newsfury has a lot more potential than just as an electronic filing cabinet for the wire services. "It is very adaptable in terms of software," says Mercer. "The system is now very dissimilar to what we started out with."

It is simple, for example, to set up new files containing virtually whatever you want. "The Foreign Desk uses it for storing lists of foreign stringers, hotels, embassy phone numbers – all sorts of things."

The system also contains a "Lookahead" file on forthcoming news events, a guide to writing style for journalists, staff addresses, work rotas and so forth.

Lyon thinks the main advantage of the system for the future will be communications. "We have three virtually separate news operations at ITN," he says. "There is 5.45 news, News At Ten and now Channel Four. Very often the left hand doesn't know what the right is doing."

Lyon wants Newsfury to carry information on where reporters and camera teams are, what are their future assignments, what film packages, satellite broadcasts and feeds from foreign broadcasters are coming in and so forth.

But for the moment Newsfury is mainly a very nifty system for storing and editing the output of the wire services and for printing out finished scripts and teleprompter rolls for the newsreaders.

If you want to know what, say, Reuter has produced in the last few hours you can get an instant list of story headlines or "slugs" in chronological sequence. If you want to know more you can get a list of opening paragraphs of the same stories.

If a story is particularly hot at the time as, say, during the Falklands crisis, you can set up a separate Falklands file and all stories from all wire services can be automatically diverted into it.

Urgent snaps are also diverted into a similar file. "We have about six at the moment," says Mercer, displaying a list of titles like Whitbread Awards, Madrid Summit and Haughey, "though some of those should have been killed by now."

All "killed" stories are automatically held in a dead file for a few days before being purged.

Another important organisational function of Newsfury is the running order file which contains the title and sequence of items agreed at the morning news conference. This changes a lot during the day.

On the editing side the terminals are fairly easy to operate. Everyone got a month's training on the system and there were several dry runs before the first night. "It took a long time to get people used to VDUs *and* a new programme," says Mercer. "There was a rump in the editorial department who thought computers were slowing things down, and there are still a few who would probably prefer typewriters."

To actually write his story the journalist can split the screen into two independently scrolling sections, the top containing the wire service script and the bottom his own story. Chunks of text can be moved from top to bottom (frowned upon) and instructions for visuals like maps, slides and VTR sequences can be inserted in inverse video.

A word counter at the top of the screen automatically displays the "reading time" for the article as you write it. "It's pretty accurate," says Lyon, "though we do have to insert extra time for numbers as it tends to count 300 as a single word."

When the story is complete the journalist hits a "Script" key and the screen shuffles into script format, with text down the right-hand column and visual directions down the left. It can then be printed out in four copies on a fast matrix printer and on a narrow teleprompter roll.

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TELETEX

The absence of terminals is holding up an exciting new market . . . Chris Naylor puts across the message

What's gone wrong with that teletex service?

TELETEX, from the users' point of view, is very simple. You buy a teletex terminal, connect it to a telephone line, and transmit and receive text to and from any other teletex terminal in the world at a speed 30 times faster than the existing telex service. And, so that you don't lose access to the 1¼ million existing telex users, you can transmit to and receive from telex machines as well.

The only snag is that you cannot, as yet, buy a teletex terminal.

Even if you could, the user would find that nobody else had a teletex terminal and that he could not connect to the existing telex service.

Even if you had a teletex terminal on your desk, it would be about as much use as an electric light bulb in the days of gas lighting.

All of which, for a service which has been favourably compared with sliced bread, seems a bit of a pity. So what, if anything, has gone wrong?

The obvious place to ask such a question seemed to be British Telecom, which is supposed to be central in the scheme. Three items emerge. Firstly British Telecom provides some very nice leaflets propounding teletex. It is one of the few places in the UK where such leaflets are available.

Secondly BT provides a copy of the *Teletex Service Technical Guide*. Weighing in at around £50 this is not for the casual bedtime reader. It is aimed at those who actually want to build a teletex terminal.

And thirdly BT expresses surprise and dismay that no manufacturer has, as yet, marketed a teletex terminal without which the whole exercise seems pointless.

And dismay is what they might well express, for the *Technical Guide* was published in July 1981 — surely sufficient time for any manufacturer to knock together a bit of kit, a sort of typewriter affair with a telephone jack on the end.

What about the manufacturers? Well, IBM admits it hasn't got a teletex terminal as yet but says that it might have one day, at which time it will tell everybody all about it.

Siemens does not sell a teletex terminal yet. "But," says the Siemens spokesman, "the teletex service hasn't been announced yet!"

But is there not a genuine BT-approved leaflet on the service?

Ericsson Information Systems doesn't sell teletex kit either. A spokesman explained, "We are waiting for Telecom. They haven't really come up with a service yet."

> **Everyone underestimated the problem. Teletex is a very difficult thing to do. It is very much more than just a Super-telex**

But, if they do come up with a service, Ericsson will sell you a nice typewriter with optional VDU screens, word processing and, yes, a teletex interface.

It is at about this moment that one begins to wonder who is right. Is there, in fact, a teletex service or not? Are there such things as teletex terminals or not? And, if there are the latter, why are there not the former?

Siemens, Ericsson, Philips, Triumph-Adler and Olivetti all claim to have teletex terminals. They sell the terminals in West Germany, Sweden, Spain and Belgium. But these terminals do not work in Britain because the British system is different.

These foreigners send all their teletex messages around on a thing called Datex L which is based on a telephone wire but not like our telephone wires. We have the PSTN and the PSS and ours do not connect with theirs. Therefore we need somewhat different terminals.

According to Martin Dowsett of Trend Communications, "Everyone underestimated the problem. Teletex is a very difficult thing to do. It is very much more than just a super-telex."

Datex L is easy to use, but British lines are difficult. When the British system is working it is going to be fine because you will be able to connect a terminal to any BT line, completely ignoring the presence or absence of such things as private internal PABXs or the PABXs of other organisations. You will just be able to plug a terminal in and use it. But it takes time to work out the problems that may occur in such a system.

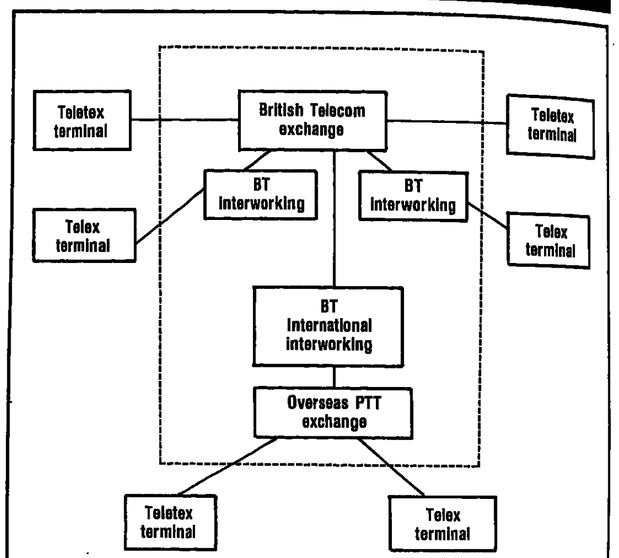
Surely if the *Technical Guide* has been around for over a year, all you need to do is to follow that.

Kevin Carter of ITT disagrees: "It is rather more difficult than just providing an interface." He points out that one of the difficulties with the *BT Technical Guide* is that it keeps getting altered by a consortium of BT and 14 outside suppliers.

Carter reckons that the first half of 1983 will see some terminals on the market but the immediate problem is that all the manufacturers are waiting for someone to get a terminal working so that they know what sort of terminal they should be making.

Which sounds like the sort of situation that could continue for some time.

Plessey, for one, is quite open about playing a waiting game. "We are aware that there will be a big market," said a spokesman, "but we are not putting a lot of effort into developing a product until we know what the product is."



Using a teletex terminal it will be possible to transmit to, and receive from, another teletex terminal in this country or overseas or a telex terminal in this country or overseas. Similar intercommunication is available from existing telex terminals.

It will not be necessary for the user to concern himself with any of the interworking activities shown within the dotted lines — these will be sorted out by terminal manufacturers and the PTTs of the countries concerned.

It will not be necessary for users to install extra lines if they do not wish to do so. The interworking units will be activated automatically by the nature of the terminals in use.

From the point of view of the user the whole system can be regarded as a black box with BT-provided lines dangling out of it. These lines may be either the PSTN (the normal phone line) or the PSS (the packet switched service).

The behaviour of the system, from the users' point of view, is the same whichever lines are used.

Of the items shown, only the BT exchange and the telex terminals exist right now.

Because the spec is liable to be altered, manufacturers are not putting terminals on the market, preferring to wait until the position is clarified. Because there are no terminals on the market there are no terminals against which new terminals can be tested. Because new terminals cannot easily be tested there is very little work being done on terminal design.

Because very little work is being done on terminal design nobody knows whether the spec is any good nor not.

In the meantime, Ricoh is said to have an attractive teletex terminal ready for the market. And British Telecom, which has said it will not supply terminals, is said to have a not-too-attractive teletex terminal of its own sitting in its labs at Martlesham.

> **We are aware that there will be a big market, but we are not putting a lot of effort into developing a product until we know what the product is**

Maybe if BT produced its own terminal that would be the best solution yet. The BT terminal could become the *de facto* standard to which all other manufacturers would adhere. Then, at least, everyone would know what they were supposed to be making and could get on with it. BT would then know what sort of interworking facilities it should provide for telex and international connections. At which point it would make more sense trying to buy a teletex terminal.

The telex market is not without its fairly modern products. Some manufacturers have just introduced some nice looking terminals, fully computerised, with automatic storing and transmission of messages with full text editing facilities. They all work at the maximum telex speed of five characters per second and are a step up on existing telex systems.

They are not fast or cheap like teletex will be when it comes — but they do exist, which teletex does not. In the absence of teletex, these new five chps telex machines are protected from immediate obsolescence.

Consider what profit is to be made by quickly marketing the ultimate teletex system when there is a decent intermediate profit to be made in enhancing the old telex system prior to the introduction of teletex — and who, in this country, makes money by providing the current telex network.

There may be more problems in the introduction of teletex than can be solved by careful production of a *Technical Guide* and these problems centre principally on the need for BT and the terminal manufacturers to find the most profitable way of extracting the maximum amount of money from the maximum number of customers.

Or is this an unworthy and mean suspicion to harbour?

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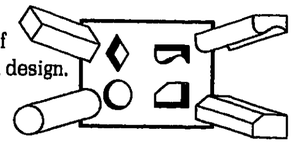

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SOVIET OPPRESSION

Linda Rout reports on the harassment of Soviet computer scientists who do not toe the State line

The muzzled intelligentsia . . .

ANATOLY SHCHARANSKY: 34, graduate of Moscow Institute of Physics; thesis on computer representation of chess end-game theory. Worked as a programmer for three years. Arrested March 1977, tried July 1978. Charges: espionage, anti-Soviet agitation. Sentence: three years in prison, followed by ten years in labour camp.

Dr VIKTOR BRAILOVSKY: 47, cybernetician at the Institute of Electronic Machines. Published over 30 articles. In 1972 whole family refused emigration visa for Israel and dismissed from their jobs. Arrested November 1980 and held for 204 days without trial. Tried June 1981. Charge: defaming the Soviet Union. Sentence: five years' internal exile.

Prof ALEXANDER LERNER: 68, until 1971 director of Large-Scale Systems, Institute of Control Sciences, Moscow, and professor at Moscow Scientific and Technical University. Author of 12 books including Fundamentals of Cybernetics. Refused visa to emigrate to Israel 1971. Accused in *Isvestia* of working for CIA.

GRIGORY GOLDSTEIN: 51, former director of cybernetics laboratory, Institue for Metrology, Tbilisi. Visa application refused and dismissed from job, December 1971. Forbidden to leave Tbilisi 1975. Arrested January 1978, tried March 1978. Charge: "parasitism" (having no job). Sentence: one year in a labour camp.

ISAI GOLDSTEIN: 44, former director of reliability department, Institute of Metrology, Tbilisi. Refused visa with his wife and brother Grigory, in 1971, because of "secret nature of employment". Dismissed from job. Head of Institute maintains neither of the Goldsteins had access to classified material. All mail intercepted.

IN computer installations throughout the UK, political discussion is commonplace. Disillusion and disagreement with the ruling party can be heard in any office, any day of the week. Some disaffected souls regularly speculate about leaving the country. Common talk, but everybody will be back tomorrow.

Not so 1,500 miles away in Moscow, where such conversations are dangerous. "Defaming the Soviet State" is a crime and "anti-Soviet activity" can lead to years of incarceration in prisons and labour camps, or at best internal exile, cut off from family and friends.

Among the dissidents suffering in these often inhuman conditions are many representatives of the computer professions.

Perhaps the best known is Anatoly Shcharansky, a 34-year-old chess master and computer scientist. While working as a programmer at a research institute for the oil and gas industry in Moscow, Shcharansky applied for a visa to emigrate to Israel, but was refused on grounds of "access to classified material".

He became an active dissident and was a co-founder of the Committee for the Implementation of the Helsinki Agreement, signed by the USSR in 1975. The agreement contains human rights clauses which Shcharansky and his committee colleagues felt were being ignored by the government.

Shcharansky speaks good English and became well-known to Western media correspondents while speaking about the plight of not only the Soviet Jews, but also Baptists, Pentecostalists and racial minorities such as the Volga Germans, banished by Stalin to Siberia and still not permitted to return. Shcharansky even appeared on television in the UK and the US, putting his case in two documentaries made by Granada Television.

Tried on charges of espionage and anti-Soviet agitation in July 1978, he was sentenced to three years in prison followed by ten years in a "strict regime" labour camp. Many observers claim the charges were fabricated, and his innocence is widely proclaimed by those who know him.

Professor Yuri Yarym-Agayev, a Soviet scientist now working in the chemistry department of Stanford University, California, studied with Shcharansky and was a fellow-member of the Helsinki Agreement monitoring committee.

"He is falsely imprisoned, there's no doubt in my mind," Agayev says. "And he never had any access to classified information at the institute. I complained to the authorities when he was arrested, but I never had an explanation."

"Access to classified information" is an excuse for refusing visas which often seems to crop up in the personal histories of the refuseniks. Michael Sherborne, a human rights worker associated with the Women's Campaign for Soviet Jewry, explains: "In the USSR almost everything is classified as an official secret.

"They have taken it to ridiculous extremes — in one case the foreman of a sausage-making factory claims he was refused a visa on grounds that he had access to official secrets."

MICHIE . . . ACM policy "punishes our own craft-brothers."

Refusal to grant exit visas to computer scientists is not unusual, despite clauses in the Helsinki Agreement guaranteeing citizens the right to live where they choose. The very act of application can be enough to attract the attention of the KGB.

In 1972 Dr Viktor Brailovsky, a cybernetician at the Institute of Electronic Machines, applied for a visa to emigrate to Israel with his family. The family were all dismissed from their jobs and for the next six years experienced regular KGB harassment until Viktor was arrested in November 1980 for "anti-Soviet agitation".

In June 1981 he was sentenced to five years' internal exile. He now lives alone in a derelict house without basic amenities and works as an engineer, repairing small computers.

But it is not only Jewish refuseniks who incur the wrath of the government. The scientists who set up the Committee for the Implementation of the Helsinki Agreement with Shcharansky in 1976 were imprisoned one by one until, on September 17 this year, the group disbanded, after its three remaining members had come under threat of prosecution.

An alternative fate for the dissident is to be branded insane and committed to a state mental hospital. Concern at this practice resulted in the formation in 1977, of the Working Commission to Investigate the Use of Psychiatry for Political Purposes.

A computer programmer, Vyacheslav Bahkmin, was a founder member, but by 1980 he had been sentenced to three years' hard labour for "defaming the Soviet state and social system".

Another computer scientist, Irina Grivnina, took his place on the Commission, but in September 1980 she was charged with circulating "slanderous material" about the Soviet State and sentenced to five years in exile.

There is some disagreement about whether the Soviet government deliberately picks on computer scientists and programmers. Michael Sherborne thinks it could be that the Soviets fear a scientific brain drain to the West, but he also says: "I don't think there's a direct link between computer work and persecution, but obviously the fact that many such people know that they could easily work in the West makes them more likely to apply for emigration."

Many dissidents are also professional colleagues of others who have suffered at the hands of the State, which has the effect of keeping activity within the trade. International links with Western computer experts may start some scientists questioning their own political system.

Peter Reddaway, senior lecturer in political science at the London School of Economics, who is in contact with many dissidents, presents another explanation: "As scientists, computer workers are important to the Soviet economy, so they may have more time to build up contacts both inside and outside the USSR before they are arrested. As a result, we are more likely to hear about them.

"And I think pure scientists are unaccustomed to political limitations on their work, so maybe they are more idealistic and less willing to make compromises."

The question soon arises of what the Western computing community can do for their Soviet colleagues — or even whether anything should be done at all. The US-based Association of Computing Machinery has long been an active campaigner on behalf of dissident computer scientists.

In 1979, Anthony Ralston, a professor of computer science at the State University of New York, was responsible for forming the ACM's Committee for Scientific Freedom and Human Rights, which compiles a list of politically persecuted computer scientists from around the world, and regularly writes to heads of state to protest in individual cases.

"ACM's official policy is that of a scientific cold war: boycotting any meetings involving Soviet scientists and refusal to maintain any relationships with Soviet scientific bodies.

Ralston, chairman of the committee and an ex-president of ACM, says: "I know there are some of our members who believe associations like ours should just 'stick to their knitting'. But I feel that human rights activities are part of our function and that they do have some effect on the Soviet authorities, especially because we are a professional body."

Ralston feels that ACM publicity may have been instrumental in influencing the release of Soviet scientist Valentin Turchin to the West in 1977 and says the dissidents themselves support ACM's work.

Certainly Professor Yarym-Agayev agrees with ACM. "I think private contact between Western and Soviet scientists is beneficial," he says, "but I oppose official contact between government bodies or professional associations."

British professional bodies are, perhaps predictably, far less enthusiastic to move into the political arena. A spokesperson for the British Computer Society says: "While we deplore any repression of computer scientists, we prefer to leave action on this issue to the conscience of individual members. We feel there are organisations better qualified than us to work in this area."

Professor Sandy Douglas, past president of the BCS and a member of the International Federation of Information Processing, which sets up international conferences, thinks the ACM policy is impractical.

"The international scientific body is not something you can just carve up," he says. "I don't think the ACM realises what it is destroying. Maintaining international links gives us a means to influence the Soviets and means we get to hear about the dissidents."

A regular campaigner on behalf of Shcharansky is Professor Donald Michie of Edinburgh University, who appealed in *Computer Weekly* for signatures to add to a telegram of protest sent to Leonid Brezhnev in 1978.

Michie disagrees with ACM policy, claiming that it is not only ineffective, but that it also deprives the West of valuable knowledge. Worst of all, he says, it punishes "our own craft-brothers" rather than their political masters.

Michie says he still maintains this position, despite the deterioration in Shcharansky's conditions since his telegram was sent, and says: "I have attempted to gain information while I have been at meetings in the USSR though I did not get very far. But I have not stopped trying to do something."

It is undoubtedly true that many members of British professional associations are concerned about the plight of their colleagues in the USSR, and would support action on their behalf, but they also feel that such action is not part of the brief of a learned society.

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SOFTWARE MONTH

CAD/CAM – the best term we've got so far

IT is sometimes claimed that CAD/CAM will be for the next few years what word processing has been for the last few: a breakthrough in the application of computing capabilities to the requirements of the non-computing specialist. CAD is, and has always been, very heavy in its processing demands; and has therefore in the past relied upon the presence of a large mainframe computer. The advent of 32-bit minicomputers, and now even 32-bit micros, and their consequent vastly improved power/cost ratios, has brought the concept to a much wider market.

CAD is the use of computers in conceptualising and analysing designs

CAD/CAM may cause the layman a lot of confusion. There is an initial difficulty in the terminology. As usual in this industry, new developments (which are dynamic) far outstrip the capability of our language (which is living but sluggish) to describe those developments.

The Penguin Dictionary of Computing makes no mention of CAD/CAM at all. Even the recent (published September 2, 1982) Concise Encyclopaedia of Information Technology compiled by Dr Adrian Stokes, makes no mention of CAD/CAM *per se*. CAD is described as "an acronym for computer aided design", and this is later described as "the process of design, using computers as aids. In particular, this is done interactively with the designer using a CRT and a light pen".

CAM is described as "an acronym for computer aided manufacturing", but this is not expanded any further. The layman may therefore be excused for understanding CAD/CAM to be a generic term for the two separate disciplines of design – a sort of glorified graphics, and manufacturing – which should clearly refer to computer-controlled robots.

This, however, is not the case. CAD/CAM is, strictly speaking, an individual discipline in its own right. To quote Massachusetts-based Computervision, claimed to be the world market leader in terms of turnover, "CAD/CAM stands for computer-aided design/-computer-aided manufacturing. CAD is the the use of computers to assist in the process of conceptualising, analysing, and documenting designs. CAM is the use of computers to convert design information into the actual product.

"This includes the reformatting of design descriptions into control information used to run automated manufacturing machines, the design and manufacture of moulds and dies, and quality control procedures."

A CAD/CAM system, in other words, is a computer-based system that first of all aids the design of a new product (a specialised production tool, for example), and then aids the manufacture of that tool by producing the data (perhaps on paper tape) that will drive a second machine in the production of the tool according to the original design specifications.

The term CAD may also stand on its own, and be used on its own, to describe the first stage. The D'Arcy Race Partnership, for example, a top UK architectural design firm, makes extensive use of CAD systems from Applied Research of Cambridge (Arc), without using those systems to build the finished product.

The CAM side of CAD/CAM, however, is not generally used in isolation. If it were, it could only apply to "robotics" in general, which is, for the moment, a separate discipline. The irony is that by the time we get used to this difference, it will have gone.

General-purpose robots will replace the specialised manufacturing machines that currently perform the CAM side of CAD/CAM.

But by the time this happens, we may well need to learn a new acronym: CIM, for Computer Integrated Manufacturing. CIM is to industry what the automated office is to commerce – the ultimate goal in automation; a concept that is already technically feasible, but still distant in complete realisation.

In "black box" terminology, it would entail the input of design criteria at one end, and the output of the finished product at the other.

HOSKINS . . . Predicts price cuts in coming year.

Pointers to a perfect system

AS with all computer-based operations, the perfect system is a combination of ideal software on ideal hardware. When looking for this hypothetical creature, the potential buyer should remember a number of points.

First and foremost, users will not be computer experts. It follows that any system considered should be easy to understand and, even more important, easy to use.

The buyer must remember that there will be an extensive learning curve to negotiate, during which time, particularly for the smaller company, not only will substantial capital be tied non-productively, but existing productivity will be somewhat curtailed.

Furthermore, the present mobility of labour suggests that existing staff are quite likely to move on to other employers, and that the productivity dip of the "learning curve" will probably be experienced several times in the lifetime of any one installation. This, of course, will continue to happen until the use of computer-aided design techniques by draughtsmen becomes the norm rather than the exception.

The second feature that the potential buyer must seek is clearly a sufficient level of help from the software package investigated to ensure an adequate return in consequent increased productivity. As an example of the capabilities of contemporary packages, complex models can be constructed quite simply using Patran-G software on a DEC Vax computer by creating a single line cross-section of half of the solid.

The outer surface of the model is then produced automatically by rotating this line through 360 degrees around a user defined axis. All this is accomplished by a single command.

The program produces the mathematical descriptions, re-sizes the screen and reproduces the new image automatically. The inner surface can be produced in a similar manner, visualisation lines can be set by the user, and the total solid can be produced by a single command that links the inner and outer surface.

The buyer must then be sure to select a system with a suitable screen response time. This is the problem that all computer applications have at some time faced and overcome to one extent or another. If, for example, the system's average response to an average command takes longer than, say 2.5 seconds, the likely result on the user will be boredom and frustration, and a consequent fall in productivity.

Needless to say, even the best software in the world will fail on this count if the processor's power is inadequate to cope with the software requirements. Online interactive design techniques are notoriously expensive in CPU time, and this has meant that until recently, CAD/CAM has belonged exclusively to mainframe installations.

The advent of 32-bit minicomputers, and advanced techniques involving intelligent terminals to reduce the number-crunching requirement on CPU time, have combined to bring prices down and send sales soaring. As an example, in 1977 BL Systems, working as consultants to BL proper, concluded that mainframe systems were too costly for BL's distributed CAD/CAM requirements.

It decided that a turnkey system based on a minicomputer would provide the flexibility required within a price range that was acceptable; and subsequently chose Computervision's Designer IV system.

The early Designer systems employed the first computer created specifically for CAD/CAM applications: the CGP-100. This has recently been supplanted by Computervision's latest 32-bit processor which has provided extra power and capacity while retaining compatibility with existing software and peripherals.

Ed Hoskins, chairman of Applied Research of Cambridge, sees several developments for the coming year. The first is, inevitably, a reduction in the prices for CAD/CAM systems. The second is a greater use of high quality colour graphics coupled with increased discernment by users in the choice of systems.

But for those who decide to wait for the ultimately ideal system, he has a brief word of warning: "There will be a slower move towards fully integrated CAD/CAM systems than previously expected by many industry pundits. The designer needs an exceptionally user-friendly system before fully integrated CAD/CAM systems can become an attractive proposition."

The Instavision terminal provides interactive access to the processor via a digitiser and light pen.

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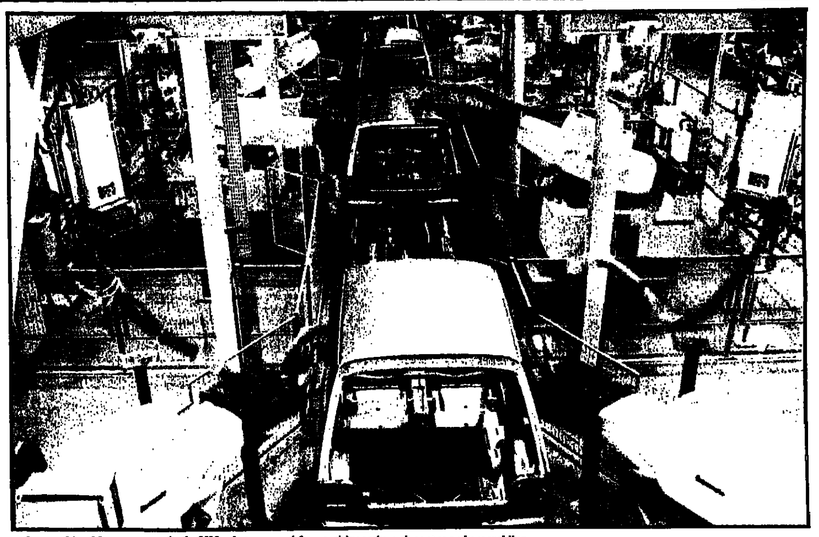
SOFTWARE MONTH

Will new techniques pose threat to jobs?



Robots making Metros – even in the UK robots are used for repetitive tasks such as spot and arc welding.

A LITTLE under 20 years ago design processes had not been touched by automation. The lengthy, detailed work of the draughtsman/designer was one of the last applications for computer technology. Traditionally time-consuming, the problems of producing fast accurate designs and, more important, amended designs, seemed to be the one area where computers were simply not applicable.

Today CAD/CAM is being used in most of the major industries. This is not merely a product of the "because it's there" mentality that finds applications where none is necessary. In purely economic terms, the use of CAD/CAM has been taken up by those companies which realise that their survival depends on being able to produce accurate, detailed designs – fast.

Two questions arise: What does this mean in terms of the current (and future) employment problem? And what are the benefits?

Taking the latter first, without doubt there are certain high technology applications to which CAD/CAM is now indispensable – in the electronics and aerospace industries for instance. The accuracy, reliability and (yet again) speed of CAD/CAM is the only means to meet design and manufacturing requirements.

> **'If the UK trades unions oppose the introduction of robotics on the grounds that it will exacerbate the unemployment problem, how can we expect to compete with the proven greater productivity of countries such as Japan?'**

The time-saving of CAD/CAM cannot be dismissed. In the time it once took to produce one design, several can now be made. Complex design/manufacture procedures can all be stored centrally on a CAD/CAM database to provide easy access to information for management.

In all, the savings are huge, the products better and more reliable and the stored information easy to update and amend.

The first question, on employment, is probably more applicable to the CAM side of the double act, or more specifically, it will be when the separate discipline of robotics becomes fully integrated into CAD/CAM. There is little doubt that at this stage CAD/CAM (or Computer Integrated Manufacture, as it will most likely be known) will lead to job losses in the manufacturing industries.

The Japanese have already embraced the robotics side wholeheartedly, and plans to develop "seeing" and "sensitive" robots are well underway.

If we are concerned to protect British jobs, we must ask if it is really necessary to join the race. The Japanese, unlike many UK manufacturers, are not particularly concerned with whether robots are a "good thing", but are concerned only with speeding up the whole process of producing a totally robot-integrated manufacturing industry.

This poses one large problem. If the UK trades unions oppose the introduction of robotics on the grounds that it will exacerbate the unemployment problem, how can we expect to compete with the proven greater productivity of countries such as Japan which use robotics?

That production is better and faster is rarely questioned. Even in the UK robots are used to do the repetitive manufacturing tasks such as spot and arc welding and (to humans, potentially dangerous) paint spraying.

The more sophisticated these robots became the greater their capacity for taking over more of the "line" manufacturing processes.

To compete on the international market the UK must therefore give serious consideration to the extensive use of robots in manufacturing. A country that is uncompetitive has little chance of survival, and even less of prosperity.

A recent report sponsored by the Engineering Industry Training BOard (EITB) and produced by Sussex University's Science Policy Research Unit (Spru) discovered that eight out of 34 engineering companies investigated had found industrial relations to be one of the main problems associated with the implementation of CAD systems.

Spru concluded: "Most users visited were in little doubt that in the long term CAD would reduce their employment of draughtsmen." This is a view realistically echoed by Ed Hoskins, chairman of CAD supplier Applied Research Limited of Cambridge (Arc).

"In our experience," he said, "a new CAD system gives the user the ability to take on more work with his existing staff, and to level out the peaks rather than to rush into redundancies.

"What is possible," he said, getting down to the nitty gritty, "is that designers who have been made redundant for other reasons, such as company liquidations, will find it perhaps more difficult to obtain re-employment in a computerised company. It may also have some effect upon the use of outside contract draughtsmen."

In short, the implementation of CAD/CAM will undoubtedly have an increasing effect on employment levels in the manufacturing industries. In the short term, this is likely to be limited to white-collar employees, but in the long term, as the CAM side of CAD/CAM integrates with robotics, this will also include large numbers of blue-collar employees.

No matter how difficult to make, the actual choice is very simple. Do we accept a healthy manufacturing industry with even fewer jobs than at present – or do we choose to cling to existing job levels and let the industry die altogether?

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BAKER . . . "Overseas competitors recognise CAD/CAM's potential."

Recession dampens DoI incentive scheme

Only 150 engineering companies out of a total of 25,000 in the UK have already installed CAD systems, according to a Sussex University report

THE government, or more specifically the Department of Industry, is currently operating a three-year awareness campaign to accelerate the introduction of relevant CAD/CAM hardware and software into British business.

Included in this is the provision of £12 million over two years for grants of up to one-third of the hardware/software cost, plus contributions towards installation and training.

Information Technology Minister Kenneth Baker had this to say on the subject: "Thanks to microelectronics, CAD/CAM systems have become far cheaper, more compact, more sophisticated, more versatile and much simpler to operate. As a result, their benefits are now within the reach of anyone.

"And let me emphasise that in terms of productivity and working efficiency alone the benefits are considerable. Our overseas competitors have recognised CAD/CAM's potential, and are acting on it. We must do the same."

The general aim of the campaign is to promote the acceptance and application of the technology. More specifically it is to provide potential users with a practical approach to understanding the concepts and uses of CAD/CAM, followed by positive financial assistance towards its acquisition.

Fundamental to the promotion of understanding is the series of practical-experience centres established by the DoI at regional centres throughout the country. Potential user firms are able to study techniques, try out equipment and obtain expert and unbiased advice.

Following this, an interested firm is able to apply to the scheme for a grant to cover the first £2,000 of the cost of an independent feasibility study to investigate the economic and technical implications of using CAD/CAM technology.

These grants are selective and can only apply where the consultant is approved by the DoI. Beyond this is the possibility of obtaining further grants towards cost of the hardware, software, training and installation.

These are made available on a selective basis to first-time users of modern computer aided design, manufacture and test equipment. Software houses or bureaux that provide direct design or test support to manufacturing industry may also be eligible.

Recent figures suggest that this scheme's progress has been sluggish, to say the least.

But perhaps more promising is the fact that between 15% and 25% of visitors to practical-experience centres take the next logical step by availing themselves of the consultancy grants.

Ed Hoskins, chairman of Applied Research of Cambridge (Arc), gave his own view of the apparent lack of interest in the government scheme: "I must point out that these grants are actually made by the Mechanical and Electrical Engineering Division of the Department of Industry, and apply only to the mechanical engineering sector. An architect or structural engineer cannot qualify.

"The idea behind the grant scheme is good; but I'd like to see it more even-handed and extended to cover the use of CAD/CAM techniques in any market sector."

No amount of incentives or education can actually stimulate a demand where the demand is suppressed by natural market forces. The world is in recession, and despite the boom in computer products, the recession is affecting CAD/CAM products as much as anything else.

The Science Policy Research Unit of Sussex University recently produced a report showing that only 150 engineering companies out of a total of 25,000 in the UK have installed CAD systems.

This, the research team felt, indicated an industry already in crisis; an industry that was spending less and less on research and development, and consequently employing fewer and fewer draughtsmen. In fact, it is estimated that in the 10 years to 1978, investment in R&D dropped by 15% while the employment of draughtsmen dropped a corresponding 25%, from 85,000 to 64,000.

Three implementation phases are apparent – an initial learning period that can last up to and in excess of a year; a secondary consolidation period that occurs while a component database is established; and a third period that occurs after the installation has proved its worth and when the firm considers re-investment and expansion. It is only at the end of the second period that substantial benefits become apparent, and productivity gains in the ratios of between 3:1 and 4:1 are achieved. In certain circumstances, even these can be improved.

With high productivity gains to be had, one can only hope that the government's capital support initiative is heeded by the engineering industry. Details of the scheme can be obtained from the Department of Industry.*

In the meantime, it would appear that sufficient companies are turning to or expanding their CAD installations to prevent the recession from being too drastic to the manufacturers.

* Mechanical & Electrical Engineering Division, Department of Industry, Ashdown House, 123 Victoria Street, London SW1.

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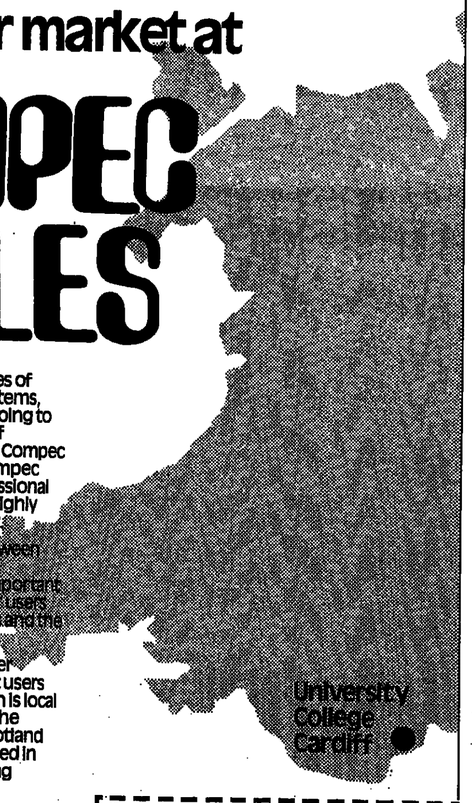

Britain's most successful series of exhibitions for computer systems, peripherals and software is going to Wales. Echoing the success of Compec in London, it follows Compec North in Manchester and Compec Scotland in Glasgow, as professional computer shows offering a highly defined geographical market.

COMPEC WALES in Cardiff between March 22-24, 1983 will allow companies selling into this important market to focus on computer users throughout this part of Wales and the West Country.

Surveys of visitors to computer exhibitions demonstrate that users prefer to attend a show which is local to them. Compec North, for the second time, and Compec Scotland were enthusiastically welcomed in 1982, and both events are being expanded for next year.

COMPEC WALES with a superb venue in the centre of Cardiff ensures the continuing success of these major computer events.

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For information about exhibiting at COMPEC WALES contact, The Exhibition Manager, COMPEC WALES IPC Exhibitions, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ. Tel 01-643 8040.

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Tektronix

Cautious steps along the badly lit road to portability

EVERYONE it seems, from DP manager in charge of multiple 3033s down to the £100 microcomputer hobbyist, is aware of something rather nasty lurking in their system's closet. When the time comes, probably pretty soon, to buy some terrific new hardware that will bring all sorts of new features, the current investment will be in question . . . the efforts of conversion may be major, far worse than anticipated. They can be so bad, in fact, that the whole idea of switching hardware has to be abandoned.

This article looks at what the problems of making software portable are, and describes how they are being alleviated.

McCORMACK & Dodge is a major vendor of general accounting software. Until recently, it operated primarily on IBM mainframes in a Cobol batch and online environment. Now its products are available on minis to mainframes from such vendors as Burroughs, Honeywell, Univac, Hewlett-Packard, Prime, and, shortly, DEC. Its task has essentially been to convert the IBM system to the other machines.

As is common, it found the porting of its batch software much easier than the online parts.

In fact, the online portions often get entirely rewritten because of entirely different screen handling and interactive I/O on different machines. In an attempt to minimise the conversion efforts, the firm has used Informatics' Taps, a sort of portable teleprocessing monitor running on IBM mainframes as well as Prime and Hewlett-Packard 3000 minis. So the conversion to these two minis has not required a rewrite, but just alteration of the source Cobol.

Lance Ohl, in charge of software development for non-IBM systems, believes that "Our major challenge is to keep to pure Ansi Cobol, avoiding any nice extensions offered by the particular compiler. Beyond this, we have a number of major problems.

"Different compilers have different restrictions even though they accept the same Cobol – 300 Kbyte programs won't compile on many of them, for example, or some compilers place a low limit on the number of EXIT's you can have from a PERFORM.

"Terminal handling is another problem . . . our applications code doesn't make many assumptions about how slick the terminal is; then we write the I/O drivers for each terminal. This is at some sacrifice in user interface of course – for instance, we read and write an entire screen at a time, rather than on a per-field or per-character basis – but it does make our applications much more portable".

Marc Analysis Research produces a word processing package called Muse. This is written in Fortran, and is currently running on Prime, Hewlett-Packard 300, and DEC-20 computers. Versions for PDP/11, Vax, and the IBM mainframes are reportedly underway.

As a systems software product, much of the Muse code deals with the hardware architecture at an intimate level. Therefore, the company has gone to great lengths to isolate machine dependencies such as word size in bits, or operating system/hardware dependencies such as the number of machine words required to contain a file name.

All these are given symbolic names in the Fortran code: a macro preprocessor binds these to a specific machine architecture during compilation.

John Rivlin, in charge of the Muse conversions, is convinced that Fortran is the most portable systems language available; "provided, of course, that you write in the simplest possible dialect . . . as we go from machine to machine our code becomes more and more bland, and easier to port. In particular, all our I/O is very simple.

"We assume only sequential binary files and random access files, and do all the file handling ourselves. Fortran I/O varies too much from machine to machine. Then we have a separate I/O module servicing the main program . . .

"I suppose our main problem has been in dealing with terminals, especially half-duplex ones like the IBM 3270 which don't send their data until they receive a carriage return".

Clearly, the obstacles to portability depend a lot on the type of program being written and the particular hardware and operating system environments involved.

A word processor has to process terminal I/O on a character by character basis. An application program can usually afford to process an entire screen at a time, undesirable as this might be. Nevertheless, many of the problems do seem to fall into general categories.

What follows is a short list of the main danger areas; it is not intended to cover everything that could possibly go wrong.

High-level languages. Different dialects exist. Be sure you write in a simple subset of the language you choose, and avoid extensions like the plague. The language should have a standard definition, whether formal or de facto, and should be widely implemented.

Good candidates are Cobol, Fortran, Basic, Pascal, and – the most recent arrival on the scene – C. Try to write programs that are unlikely to exceed the bounds of a particular compiler, such as the maximum size of an integer, or very large programs.

> **'Because of the major difficulties introduced by different operating systems, a demand has been created for standard operating systems. These have become particularly popular with microcomputers'**

Terminal handling. There are few effective standards in the terminal world. A VDU is very different from a teletype, and one VDU is often different from another at the control level. For example, cursor and screen controls differ, there may be special function keys, and some terminals are half-duplex while others are full duplex.

Filé&database handling. Data storage and retrieval mechanisms vary greatly. There is a great functional difference between the hierarchical directory structure of Unix, and IBM OS libraries; and there is a great functional difference between a sequential file organisation, and database management system organisations such as those provided by IMS and Total.

Operating system features. The trouble with operating systems is that they are all-pervasive. They determine resource allocation (especially main memory), they handle program-to-program communications and general job control (eg JCL), and provide all sorts of useful system calls (eg date and time, size of file). Operating systems vary tremendously, even on the same hardware.

The firms that have given most thought to the issues of portability are vendors of software, who want to be able to offer their products on a variety of machines – partly to expand their markets, and partly to satisfy the demands of existing customers wishing to move to new hardware.

McCormack and Dodge and Marc Analysis Research, are good examples of this. Today, most vendors are adopting three approaches to portability. They use high-level languages; they try to separate machine dependent code from portable code; and – recently, mostly in the mini/micro area – they work in a portable operating system environment.

Because of the major difficulties introduced by different operating systems, a demand has been created for standard operating systems. These have become particularly popular with microcomputers, where CP/M is a common single-user OS with some 200,000 installations.

Unix, a powerful multi-user OS, is also becoming widely available – again, particularly in the mini/micro area, but also on mainframes (eg Amdahl Corp supports the product).

Unfortunately, the topic of portability is not yet well understood, and classes are not readily available to would-be students. This is a pity, the industry badly needs more discussion of this critical topic.

As a result, most firms are finding that they learn how to write portable code by a mixture of intelligent anticipation and reflection on possible problems, and the evolutionary process of refining the code as versions for new environments are developed.

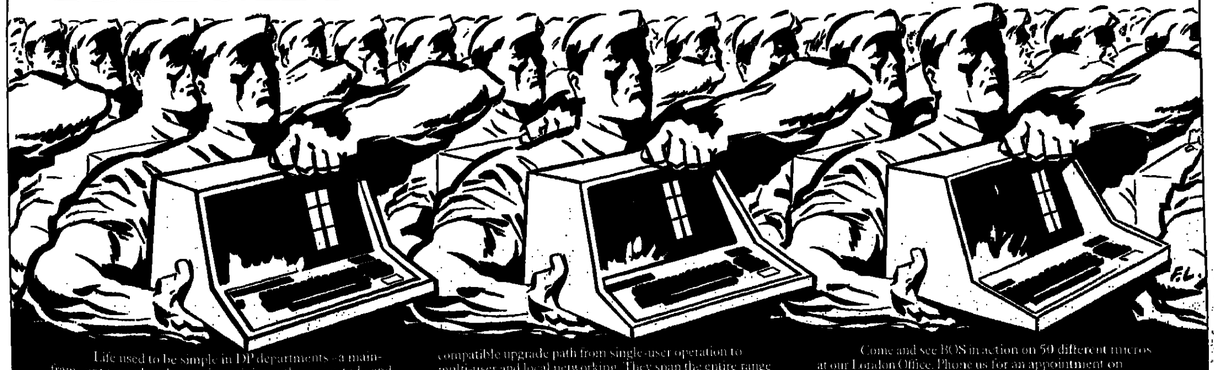
Having done this, they often find more than 80% to 90% of their code has become easily portable – obviously an attractive return for their efforts.

For the moment, the road to portability is not especially well-lit, but the software industry will be earnestly treading its path over the next few years.

David Ferris

Ferris is a consultant in the UK and US providing marketing and planning advice to computer vendors, particularly in the area of software.

DP MANAGERS: ARE YOU CONTROLLING THE MICRO REVOLUTIONARIES?



Life used to be simple in DP departments – a mainframe or two and perhaps a few minis neatly connected – and the DP Manager firmly in the driving seat.

That was before these all-pervading micros started invading user departments, and the users became as expert as the DP Manager – or thought they were.

With so many different micros in use, how can DP Managers be expected to provide central support effectively?

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BOS Systems are compact enough to operate a 64K personal computer, yet powerful enough to exploit the Winchester disks, cartridge tapes and megabyte memories of the modern multi-user micro.

Is your problem developing software for micros? Then don't fight the revolution, join it! Join those in government, industry and commerce who have already standardised on BOS software for their development, using the BOS Cobol Compiler, Screen Formatter and AutoClerk Report Generator.

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Encoder offers 20-bit resolution

AN optical absolute shaft encoder from Ferranti is believed to be the first in the world to offer 20-bit resolution and full microprocessor control.

The 35HA encoder has been developed by the Industrial Components Group of Ferranti in Scotland. It is designed to measure the rotation of a shaft to a resolution of 1.2 arc seconds and a repeatability of 5 arc seconds. The resolution of the read-out is greater than one part in a million.

The 35HA is packaged in a conventional 3.5 in diameter, 3in long cylindrical casing, and requires only a single +5V electrical supply, making fitting to a machine tool or other machine simple. It is designed with the computer user in mind and incorporates the latest in microelectronic technology. The heart of the encoder is a Z8 microprocessor, one of the most powerful chips of its type available. Even so the 35HA can still be integrated with traditional hard-wired logic.

Ferranti sees a wide variety of uses for this device, in standards laboratories, quality assurance and calibration.

Since it is easier and more accurate to measure rotational rather than linear movement the new device will find applications in next generation robotics and similar advanced systems.

For applications where the encoder is not interfaced with an overall computer-controlled system, Ferranti has a specially designed interface/power supply box available. This can handle the outputs from up to seven encoders, displaying their positions either on its own display or remotely in any units the user wishes.

The Ferranti 35HA high accuracy optical absolute shaft encoder.

The 35HA is also advanced in being able to measure the angular position of rapidly rotating shaft while still managing high accuracy. Even as high as 1,000rpm accuracy is maintained to better than one part in 16,000, implying not only accurate information but an extemely rapid data rate.

Ferranti Industrial Components Group (CW), Thornybank, Dalkeith, Midlothian EH22 2NG. Tel: (031-663) 2821.

Itoh adds to printer range

THREE new high grade printers, the 8600 and CI300 dot matrix models and a low-cost daisywheel model, have been added to the extensive C. Itoh range of peripheral products.

The 8600 is a 180 chps fast throughput 18 needle dot matrix printer capable of letter quality two-colour printing. It can print 80 characters per line (standard) or 136 characters per line (compressed).

The CI300 is a high speed dot matrix line printer which operates in a shuttle mode enabling it to print at speeds of 300 lines per minute and 600 lines per minute at 136 characters per line. The CI300 can be used as a desk top model and with a noise level rating of about 60dB (A), is quiet in operation.

C. Itoh & Co. (CW), London International Press Centre, 76 Shoe Lane, London EC4A 3JB. Tel: 01-353 6090.

Screen shows a display by ORP II, for the design of profiling tools.

Dutch CAD program speeds up tool design

OVEREEM CAD-Services of Scherpenzeel, Holland, has developed a computer program called Overeem Roll-forming Program II (ORP II) for the interactive design of profiling tools. Application of the ORP II program yields substantial time savings, says Overeem, and a high degree of precision.

The new program is fully compatible with ORP I, which is a simulation program of the actual profiling process. For that purpose the strip to be formed into a profile has its cross-section drawn each time a profiling station is passed.

In addition, the top and the side view of the entire strip can also be plotted. In order to evaluate the progress of the shaping process the operator can call on a routine which will calculate the percentage of stretch of the strip for him.

The ORP I program also calculates the total strip width of the profile to be fabricated. The program allows for a shift of the neutral fibre towards the internal radius of each angle to be formed.

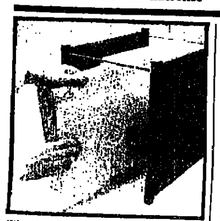
If an erroneous item is input, the error can be read off from the data and drawings generated by the system, after which the correction can be made. In this way it is possible to instruct the system to simulate a number of design variants, and subsequently compare the results.

The menu composed in this way allows simple and rapid design of the forming rolls. The program has a total design capacity of 30 profiling stations. Dimensioning of the profiling stations is a fully automated task, so that calculation error is ruled out.

The hardware consists of a Hewlett-Packard HP9845T desk-top computer with VDU and thermal printer, a Houston Instruments HI DP 8S3 drum plotter and floppy disc drive.

The software permits the time needed to design profiling tools to be cut from several days to no more than a few hours, says the company, and the program also offers a high degree of precision, so that tool finishing operations are kept down to a minimum.

Overeem CAD-Services (CW) Overeem Metaal BV, PO Box 6, 3925 ZG, Scherpenzeel (Gld), Holland.



The Rexel Wilson Jones Data Rack.

Printout on the rack

THE Rexel Wilson Jones Data Rack is a suspension rack to hold and organise records bound in nylon post binders. One of the lowest priced systems of its kind on the market, retailing at around £40, the Data Rack is aimed at offices with mini- or microcomputers where limited amounts of computer records must be kept close at hand for frequent reference.

The modular design allows for the system to be expanded as DP records grow.

The frame will house up to four binders containing burst or unburst printout, suspended on integral slide lock hangers or with T bars and channels for two-way retrieval.

The Data Rack is available in three styles; mobile, desk-top and for storing A4 size records from high speed printers.

Rexel (CW), Gatehouse Road, Aylesbury, Bucks, HP19 3DT. Tel: (0296) 81421.

Storage and retrieval system

WHAT is claimed to be the first British manufactured range of horizontal carousel storage and retrieval systems for business and industrial applications is now available from Stewart Gill of Slough.

The company has developed from its closed track conveyor a system for use in offices for the storage, instant access and retrieval of documentation, records, tapes, discs and documents.

The system is being marketed as the Conrak Stewart Gill Carousel. The control systems range from a simple shelf carrier number call up to a full microprocessor single board computer.

The first units have recently been installed in University Free Hospital in Amsterdam and are operating to the satisfaction of the clients, says the company. The hospital has eight Conrak horizontal carousels each with 36 shelf carriers, storing folders which can be brought by the shortest route to the controller where he can obtain any one of up to 300,000 patients' records, rapidly and with complete security.

Stewart Gill feels that the fact that the first of these British designed and built office carousels has gone to Holland is indicative of the firm's long-standing role as a major producer of top quality conveyors.

The Conrak storage carousel in the University Free Hospital, Amsterdam, holds up to 300,000 patients' records.

Stewart Gill & Co Ltd (CW), 163 Bath Road, Slough, Berks. SL1 4AB. Tel: 0753 75115.

'Word processor capacity tripled'

PAST experience made it obvious to CSL Business Systems that one of the shortcomings of a word processor is the amount of time it is effectively "out of action" when the operator is occupying the system for the necessary input of information. With this in mind, CSL set about producing a low cost solution to the problem.

The result: WordPro. This is a small unit which, when connected to a golfball or electronic typewriter, stores the typed text on a micro-cassette and turns the typewriter into an extra input station for word processors.

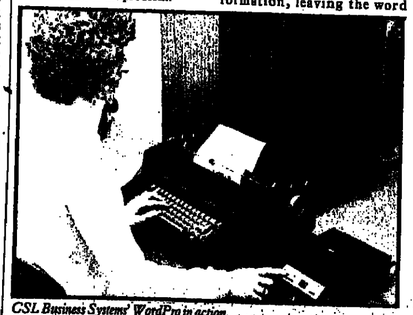
With WordPro any typist in the office can now prepare new information, leaving the word processor free to do the important part of its job and triple its output, says CSL.

Customer trials over the past few months have shown that the WordPro gives a word processor its extra capacity at about one quarter of the cost of additional WP equipment.

The price of a WordPro, which is designed and manufactured in the UK, starts at £1,095.

WordPro can be used in various ways. One unit can be linked to both a typewriter and a word processor and used as both an input device from the typewriter, with output to the word processor. Or several typewriters can each have their own WordPro unit and the word processor can have a separate unit for reading the data into the system.

Alternatively, several typewriters can be modified for use with WordPro, and one unit can be shared between the typists as and when required.



CSL Business Systems' WordPro in action.

CSL Business Systems (CW), Bijoll House, Icknield Way, Letchworth, Herts. SG6 4AB. Tel: (04626) 73991.

Desk-top fiche reader

INFORMATION Design has introduced the Cube, a lightweight microfiche reader that allows secretaries or data processing operators involved in word processing to access microfilm data without taking space on their desks.

The Cube's special desk stand raises it well above the desk's surface to eye level. Its angle can be adjusted for optimum viewing, and its controls are front-mounted to provide quick access to information.

The Cube features a dual lens which allows the user to enlarge an image to make it easily readable. It has magnification ratios from 24x to 48x and an 8½in x 8½in (12in diagonal) screen. The Cube is priced at $275.

Information Design (CW), 1300 Charleston Road, Mountain View, CA94043.

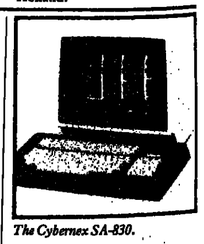
Reservision for travel agents

A PRESTEL-based system for tour operators and travel agents is announced by Datasolve. Called Reservision, the new service uses the British Telecom Gateway facility to provide an online computerised reservation service.

Agents with Prestel sets and a typewriter-like keyboard will be able to make direct reservation enquiries and gain an immediate response. The agent types in customers' requests with details of numbers of holidaymakers, dates and destination required. The computer will then accept and confirm bookings or offer suitable alternatives.

Agents without the Prestel facility can use an alternative reservation method by telephoning the tour operator who has a direct link to current holiday availability held on Datasolve's computer. This enables a travel agent, or a customer wishing to make a direct booking, to telephone the tour operator's reservations department where the booking staff can immediately call up information on their terminals showing up-to-date booking and flight information.

Datasolve (CW), 99 Staines Road West, Sunbury-on-Thames, Middx. TW16 7AH. Tel: (09327) 85566.



The Cybernex SA-830.

Burroughs emulation

BRENT-CYBERNEX has introduced the first model of its synchronous/asynchronous SA series of visual display terminals with the announcement of the SA-830.

The SA-830 features full Burroughs TD-830 emulation with 25th line, status register, self-test and diagnostic message compatibility. The SA-830 supports both synchronous and asynchronous communications and is equipped with RS232 and TDI interfaces.

Additional standard features of the SA-830 include high resolution 9 x 14 dot matrix character cell and etched non-glare green phosphor CRT.

Brent-Cybernex (CW), Serpentine House, Dallow Road, Luton LU1 1TP. Tel.: (0582) 452020.

Alternative way to input data

FERRANTI Computer Systems has introduced the Image Data handprint recognition tablet as an alternative means of data input to a computer. The tablet is being marketed by the company's newly formed Image data group.

Typical applications are likely to be telephone sales, hospital admissions, police incident records and stock control, where standard forms are continually or regularly completed.

The tablet resembles an ordinary desk blotting pad, with a dual-purpose pen. The pen connects electronically with the tablet, sending the character to the computer while at the same time producing a permanent written copy. A graphics option is also available, enabling text and diagrams to be combined.

The Ferranti handprint recognition system solves many forms-entry problems. The large area allows sheets up to 30cm (12 inches) square to be used, and is ideal where data input is not the main job of the operator or where the original hand written copy needs to be retrained.

Ferranti is developing new interfaces to the tablet, enabling it to be connected to ICL and IBM mainframe computers via the PT7 range of terminals.

Ferranti Computer Systems (CW), Wythenshawe Division, Simonsway, Wythenshawe, Manchester M22 5LA. Tel: (061) 499 3355.

Plastic card service for continuous stationery

A SERVICE for the printing and inclusion of flexible plastic cards on continuous stationery for computers or word processors has been launched by Waddingtons Business Forms in conjunction with DataCard International.

Because the use of plastic cards is now widespread as personnel identification and recognition of membership of clubs, societies, credit organisations and so on, there is a growing need for them to be available in a continuous stationery format, according to Waddingtons.

The new service includes supply of both the continuous stationery and the cards to the customers' own design, and the cards can be subsequently processed and personalised using the customers' existing computer or word processing facilities.

The company says its printing skills and specialist knowledge on adhesives and mounting makes for a finished tabbed-on product that looks good, handles well, and can be taken off the carrier sheet easily by the eventual end user.

"There is an increasing demand for greater sophistication of design and creativity in business forms," said Graham Trousdale, Waddington's product development manager.

DataCard International has developed a special "computer print card" for use with Waddingtons continuous stationery. The cards have the right balance of flexibility and strength to ensure optimum appearance, quality and performance, according to the company.

Waddingtons has developed its plastic cards service by adapting its existing expertise in producing self adhesive labels for continuous or tabbed-on word processing stationery. Other refinements to meet growing demand for quality and precision printed business card perforation on carrier sheets.

Waddingtons Business Forms (CW), Westland Road, Leeds LS11 5SN. Tel: (0532) 701921.

Wang OIS and VS link to Diablo printers

DIABLO printers for use with the Wang OIS and the Wang VS systems have been announced by Applied Computer Sciences in conjunction with Diablo systems.

Until now printers for the OIS and VS systems were only available from Wang.

Tom Coccione, senior vice-president of ACS, said: "With the combination of the ACS dual-coax interface and Diablo's printers, we are now able to offer the Wang OIS and VS user an extremely attractive, cost saving alternative without sacrificing reliability."

The first Diablo printers to be compatible with the Wang OIS and VS are the popular 630 RO and KSR models. The Diablo 630, with a print speed of 40 characters per second, is a letter quality printer-terminal. The 630 user can interchange plastic and metalised printwheels on the same printer to select the appropriate plastic or metal printwheel for the application.

Wang users will also be able to use the recently introduced Diablo 630 ECS (Extended Character Set) printer-terminal. The first 400-character daisywheel printer in the world features printwheels that contain two rows of up to 96 characters each. From the basic set-up of up to 192 alphanumeric characters and symbols, as many as 250 additional characters or graphics can be constructed.

The new Diablo 630 ECS is an applications-oriented printer designed for traditional and specialised applications processing, and is claimed to extend significantly the role of daisywheel technology for all word and data processing environments.

Two printwheels are available for the Model 630 ECS: a teletext multilingual printwheel which provides 307 official teletex characters, as well as additional characters needed to print in 33 different languages, and a scientific and technical printwheel.

Other printwheels will be added as user needs are defined. The 630 ECS can also accommodate Diablo's standard metalised and plastic printwheels used in all basic 630 printers. This new unit is based on the Model 630's design; only the carriage system has been altered to allow the printwheel to move up and down. The Model 630 ECS prints average English text at 33 chps.

Diablo's lowest priced letter quality printer, the Model 620, will also be offered as a Wang compatible unit with the ACS dual-coax interface. The Model 620 prints up to 25 chps and features "drop-in" plastic printwheels, with automatic ribbon and printwheel positioning sensors. The printwheels can be inserted by the user without referencing special notches. The print quality of the 620 is equal to that of the 630 Model.

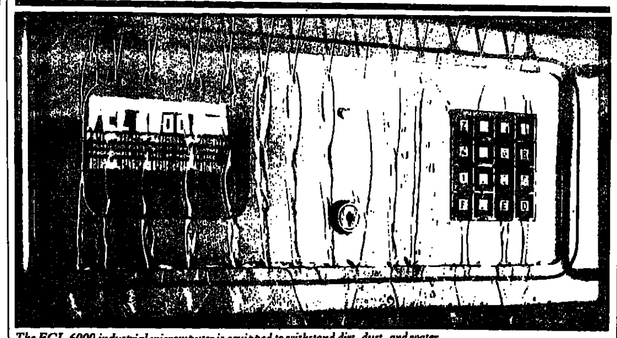
A 150 chps dot matrix printer is available to Wang OIS/VS users. First shipments of these printers were delivered in mid-October. Shortly to be announced is the availability of Diablo's dual purpose matrix printer for Wang users. This printer operates as both a high speed draft printer and a dual-strike correspondence quality printer.

The ACS interface is completely internalised within the various Diablo models. Previously, ACS interfaces were offered as external "black" boxes. ACS' original interfaces hooked up a variety of non-Wang printers to the popular Wang 2200 computer systems. This meant that for every printer an external "black" box was needed and this proved cumbersome at times.

An agreement has been signed with Xerox, the parent company of Diablo Systems, for nationwide on-site maintenance for Diablo's complete line of Wang compatible printers.

On-site maintenance agreements are available at a low annual rate for all Wang compatible Diablo printer-terminals, which are also covered by a 90-day warranty. The maintenance contract covers service on both the printer-terminal and the ACS interface.

Applied Computer Sciences (CW), 14218 N.E. 21st Street, Bellevue, Washington 98007. Tel: 0101-206-644-2720.



The FCL 6000 industrial microcomputer is equipped to withstand dirt, dust, and water.

Apple II for use in industry

FLEXITALLIC Controls has taken the standard Apple II and adapted it to the demands of industry.

The company's industrial computer, the FCL 6000, uses no unreliable or vulnerable magnetic discs or tapes. The unit incorporates a solid state board and is housed in a dust and splash proof cabinet with VDU and keypad built into front panel. The FCL 6000 meets IP65, the standard for control equipment, and is claimed to be ideal for data acquisition analysis and control applications in industrial and laboratory environments.

The FCL 6000 can be programmed directly using a separate plug-in full keyboard or software can be developed "off-line" and plugged directly into the computer.

Flexitallic Controls (CW), Dell Road, Rochdale, Lancashire OL12 6BZ. Tel: (0706) 343438.

Graphics processor is 'half the price' of rivals

VECTRIX has announced the VX series of low-cost, high-resolution computer graphics processors.

Claimed to be available for less than half the price of comparable products, the VX128 Graphics Processor features 672 x 480 resolution, eight simultaneous colours, and high-level graphics commands for easy creation of 3-D vector images, with rotation, translation, scaling, and automatic polygon fill.

The company has also launched the VX384 Graphics Processor, which expands the VX128 to 512 colours.

The VX128 uses a 16-bit Intel 8088 chip to translate commands from almost any host microcomputer or minicomputer, the new NEC PD7220/GDC chip for high-speed generation of lines and arcs in a variety of dot and dash patterns and 1600 nanosecond pixel update, and 128K RAM frame buffer with three bit planes for individual pixel addressability in any of eight colours.

The VX128 allows the user to load any text font, with variable zoom factor, slant, and spacing, or to use a built-in character set.

Vectrix says that novice programmers will find it easy to use the VX128s.

Vectrix (CW), 700 Battleground Avenue, Greensboro, North Carolina, US. Tel: (919) 2.

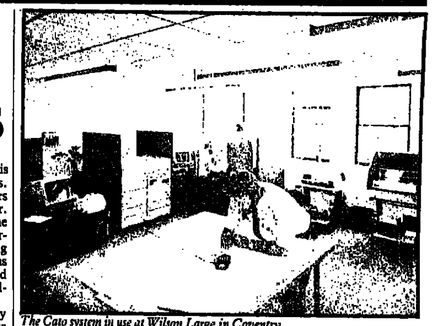
Jaguar to distribute Nolton kit

JAGUAR Communications has been appointed by Dynatech Nolton as distributors of the Nolton range of UK-built data communications products.

The equipment handled by Jaguar includes the 1600 series of synchronous and asynchronous line drivers.

Martin Hewitt, managing director of Jaguar said: "We needed a source of good quality data transdevices. We chose Nolton on account of the reliability, price and performance of the equipment."

Jaguar Communications (CW), Elton House, London Road, St Albans, Herts. AL1 1LJ.



The Cato system in use at Wilson Large in Coventry.

System saves time for the quantity surveyor

A COMPUTER-AIDED quantity surveying system developed and marketed by Elstree Computing, a subsidiary of the John Laing building group, is designed to undertake time-consuming figurework and handle production of bills.

Called the Computer Aided Taking Off system, or Cato, the system has been adopted by Wilson Large and Partners, a surveying practice with offices in Coventry, London, Nottingham, Preston, Romford, Sheffield, Winchester and Cambridge.

Developed in conjunction with practising quantity surveyors, the Cato system is based on a DEC PDP 11/23 minicomputer with a Diablo II daisywheel printer for high quality production of documents, and facilities for up to five VDU-based workstations. A digitising drawing board with an electronically sensitive "puck" is used for direct scaling of measurements into the computer from drawings. Cato also has a small thermal printer to record data during input.

Information is fed into the computer by the surveyor, using a library of descriptions as a base via the keyboard, or the digitiser. A colour-coded menu, providing an easy-to-operate system of linking description codings to machine instructions for measurement functions, is incorporated on the digitiser so that the surveyor need not return to the keyboard when using the digitiser.

When the relevant descriptions and measurements have been entered, Cato produces the bills of quantities including squaring dimensions, working up, abstracting, collating and printing of a high quality final bill ready for copy. In addition, the computer can be used for other applications including word processing, project costing, payroll and financial accounting.

Elstree Computing (CW), 12 Elstree Way, Boreham Wood, Herts WD6 1NS. Tel: 01-207 2000.

Hard copy in colour

THE rapidly expanding application of Polaroid films in several formats to produce "hard copy" from raster-scan signals generated by computers or video systems is exemplified by the new Polaroid VideoPrinter colour film recorders.

The VideoPrinter Model 8 colour film recorder emphasises the security, speed and convenience of making presentation-quality overhead colour projection transparencies on Colorgraph Type 891 8 × 10in film. Colorgraph film provides a high-quality finished projection transparency in little more than four minutes, says Polaroid. Polacolor ER Type 809 film is also compatible with the VideoPrinter Model 8, and produces an 8 × 10 inch colour print in a minute.

The VideoPrinter Model 8 is a dedicated colour film recorder, and is said to offer the photographic advantages of digital image processing at a price comparable to analogue devices. The microprocessor-controlled, display-driven system produces detailed continuous-tone full-colour hard copy images from a variety of computer and video coded signals.

Designed for desktop use, the unit is compact and lightweight, measuring 61cm × 41cm × 64cm and weighs 22kg. The system delivers virtually distortion-free, accurate colour copies, and features controls to minimise raster lines.

It produces hard copy superior in quality to images directly photographed from the screen, and frequently better than the video image itself. Automatic settings for brightness, contrast and colour balance can be manually adjusted to achieve complete tonal control or dramatically modify the image.

The VideoPrinter Model 4 colour film recorder uses the more conventional analogue technology, producing hard copy from video imaging systems on several Polaroid film formats.

Polaroid is establishing an international distribution network for the VideoPrinters. Sintrom Electronics is the first UK distributor. Systems are expected to be available in Europe before the end of the year.

Polaroid (UK) (CW), Ashley Road, St Albans, Herts AL1 5PR. Tel: (0727) 59191.

Polaroid's VideoPrinter Model 8.

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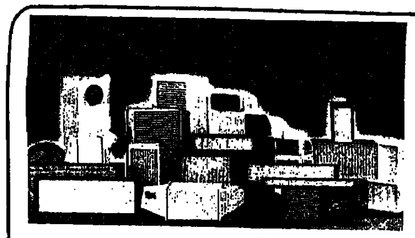

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Supervision of 2 operators on ICL System 10 with the ability to write new programming specifications. Straight days. **Ref: OPS 045**

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Honeywell L64-DPS7 Essex
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SOUTH EAST
c.£20,000 + car

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The requirement is for an energetic and seasoned data processing professional with a demonstrable record of success in establishing major information systems utilising all of the latest technology and methods, from concept to effective production running, preferably though not essentially, in a high technology construction engineering company environment. This new appointment is based at head office in the South East and also involves a reasonable amount of travel to operating sites and offices overseas.

An excellent starting salary will be offered in the region of £20,000, plus a company car and a range of large company benefits, with overseas allowances when appropriate. Relocation costs to the South East will be adequately covered.

Please write or telephone for a Professional History form to ANTHONY SPURR, Executive Selection Division, at the address below, quoting reference number G1093/CW. Applications, from either sex, are invited in complete confidence.

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In the first instance, telephone **Steven Baker** on: **01-370 2012/2013.** Or send a brief CV for his attention to the address below. Any approach will be treated in the strictest confidence.

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FTB

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Programming Team Leaders

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A member of an international group is fast expanding its range of services to major clients operating in the European manufacturing and distribution sector. To achieve planned growth targets they are now seeking a number of committed, profit-conscious professionals to create new teams and join existing teams working on large scale interactive systems based on Digital VAX hardware.

Managing Consultants are required to control a number of projects with full responsibility for meeting agreed timescales, product quality and profit performance. Previous control of systems analysis and programming on significant projects together with a successful background in the manufacturing and distribution sector are essential prerequisites.

Consultants are required to control individual projects reporting to a managing consultant or to work as team members on large projects. A background in manufacturing applications, distribution applications or finance would be a significant advantage. Strong systems and communications skills are essential qualities.

Programming Team Leaders are required to control all programming activities within a project team and will be expected to provide significant technical design support in addition to ensuring that quality and standards are maintained whilst achieving agreed targets. All programming is in COBOL using Database techniques and sophisticated programming tools.

Career prospects are excellent and are geared to personal performance.

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(193)

Systems Manager

New appointment

WEST LONDON

c.£18,000 + car and benefits

Our client is a well established international service company and the world leader in its field.

Due to re-organisation, they wish to appoint a Systems Manager who, reporting to the Director of Management Services, will be responsible for all centralised systems development using a substantial IBM mainframe facility. Operating in an advanced technical environment, with extensive communications links to a European network of mini computers and dedicated transatlantic lines, the appointee will be responsible for a highly professional systems development team of around 15, including a Data Administrator. The major emphasis will be on the provision of a wide range of IDMS based applications with on-going responsibility for ensuring the integrity of existing COBOL based systems until such time as these are superseded.

The requirement is for an energetic and self-motivated systems professional with at least 10 years substantial data processing experience and demonstrable man management skills. A technical profile which includes experience of a recognised DBMS package with on-line enquiry facilities, is desirable, as is a knowledge of host to host computer communications. An applications background which includes exposure to General Ledger and Receivable systems would be ideal. Preferred age is around the mid-thirties and a degree or appropriate professional qualification would be a distinct advantage.

This appointment is a rare opportunity to join one of the more advanced and sophisticated systems and computing functions in the UK at the onset of a major development programme. The position carries an attractive salary, a quality car and free medical assurance together with normal large company benefits.

To apply, please send a CV or write or telephone for an application form, to JOHN KITCHEN, at the address below quoting Ref. G1089. Applications are invited from either sex.

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(1930)

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(1946)

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Further details and forms of application may be obtained from The Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU.

Forms should be returned no later than 31st December 1982.

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Sound experience in Software Design of telephony based switching systems. Good knowledge of State of the Art digital microprocessor control of PABX applications. A knowledge of CORAL, CHILL, PASCAL, BASIC, etc., an asset. Fluency in German.

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Sound experience of C3, good knowledge of both Hardware and Software, local area networks, data communications and process control. Experience with Seaborne Systems useful.

Candidates without the above experience, with fluency in any European language, are invited to apply for other positions not included in this advertisement. Please telephone 01-693 3218 until 9pm Monday-Saturday inclusive.

(1971)

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Accounts Manager

UK-based — **c.£30,000pa.**

Following our successful expansion into the UK market, we are seeking an experienced DP professional to take responsibility for part of our U.K. and European activities. Duties will include project management by on-site visits to CDS staff and client managers, contract negotiations, marketing and sales visits to prospective clients, and quite possibly some interviewing of prospective new staff. Candidates should have a background in Project Development or Technical Support to at least a junior management level, or experience in Software or Consultancy Sales, and knowledge of the IBM environment would be a distinct advantage. The salary and benefits package will be tailored to the needs and experience of the successful applicant, but it is planned to comprise of a generous basic salary plus commission and other benefits such as a car. The successful applicant will probably be based in our Thames Valley offices, although we are prepared to consider candidates who would prefer to set up a branch office elsewhere in the U.K.

(1942)

CDS is an Anglo-Swiss Consultancy specialising in systems programming and DB/DC application development. For further details of the above positions or for an informal discussion on future European or UK assignments please contact Mike Shine at our UK offices Tel. 0276 68126l (or on 0276 61808 during evenings/weekends).

Telex 858062

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PROGRAMMERS TO £10,000

The Teleprocessing Computer Centre, an established on-line service bureau and software house, have agreed a strategy placing them at the threshold of a substantial development phase. The Company wish to recruit **Programmers** with at least 3½ years' experience, most of which should be Cobol, to be involved in the development of major commercial products. A practical knowledge of structured programming techniques is required, gained ideally in a software house or bureau environment. Candidates should be highly adaptable and self-motivated with the ability to meet deadlines. In return the Company offer good salaries and working conditions according to experience.

LOCATION: SLOUGH — **JA310/1**

Confidential Reply

SOFTWARE ENGINEERS SOFTWARE PROGRAMMERS to £9,500

Our client has a worldwide reputation for designing, building and installing integrated software and engineering systems. Opportunities have arisen for Software Engineers and Programmers from a mini/micro environment to work on display and data handling systems for advanced technical applications. **Software Engineers** should have about four years' experience including programming, systems design and implementation gained in a senior role. Involvement with real time applications would be preferable. **Software Programmers** should have about two years' experience including Assembler or a high level language. Program specification and systems appreciation would be an advantage. Company benefits are generous including flexible working hours, relocation and five weeks' holiday.

LOCATION: ESSEX — **JA310/2**

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ADP Network Services, a world-leading remote computing services company are at the forefront of the latest Videotex/Viewdata technology. Rapid development in this field has created an opportunity for a **Software Engineer** in the Research and Development department. Candidates should have a strong commercial background gained under RSX11M using Macroll and Fortran. The position calls for an imaginative outlook and requires the ability to work within timescales; it is also likely that the successful candidate will assume supervisory responsibilities in the near future. In addition to highly competitive salaries, ADP offer excellent career opportunities within a challenging environment.

LOCATION: LONDON — **JA310/3**

Confidential Reply

CONSULTANTS TO £17,000 + CAR

Our client is one of Europe's leading systems consultancies with a commitment to providing quality software services. Increased business has created a requirement for **Consultants** to work on a number of projects within a complete range of military applications and software. The successful candidates will have proven ability in any of the following areas:

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★ **REALTIME SYSTEMS**
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In return our client offers excellent salaries, in a range according to experience and a comprehensive benefits package.

JA310/4

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ACT Services Limited, an established container transportation company are continuing their development of large documentary and associated commercial systems. The company would like to hear from self-motivated **Senior Programmers** capable of taking a leading role in these developments and with the ability to work within time scales. The successful candidate will work closely with analysts and should have around three to four years' experience in a large mainframe environment supporting Cobol. In addition to salary a comprehensive relocation package is available to suitable applicants as well as a range of benefits normally associated with a large organisation.

LOCATION: HAMPSHIRE — **JA310/5**

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Applicants must be able to demonstrate a good record in the management of a significant sized installation, committed to the provision of on-line and database facilities. They will have experience beyond computer operations, ideally, in application systems development, and systems programming. Candidates are unlikely to be under 35 and should be graduates.

The excellent remuneration package, including car and large company benefits, reflects the importance of this position. Relocation expenses will be reimbursed where appropriate.

TO APPLY, please write or telephone for an application form to ALAN THORNTON-WEST, at the address below, quoting reference KG57. Applications, which will be treated in strictest confidence, are invited from either sex.

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PE

(1968)

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(1920)

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(1937)

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(1974)

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(1998)

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RSX - FORTRAN - VIEWDATA background will secure. Ref: CA288.

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PROJECT LEADER **£8-11K + BONUS**

Exciting opportunity to join leading software house about to install a new prestigious minicomputer. Ideal for young programmer interested in using RPGII experience to gain immediate promotion. Your chance of leading MULTI projects to increase their commercial systems awareness and financial rewards. Ref: CG1034.

JUNIOR CONSULTANT **£10-12K + car**

This well-known professional group provides consultancy services to their existing client base covering DP – micros – office technology. You will understudy some of the best commercial, financial, industrial people in the country, preparing for your own U.K. and international assignments when ready. If you are interested in applications and have good qualifications then no specific languages, hardware, etc., are required. Ref: CS7.

WHY COMMUTE!

WOKING **£8-13K + benefits**

This secure local company has a total commitment to its DP facility and staff and is offering positions at several levels to work on their new financial systems (VME/B + COBOL if you are interested in programming). Cheap mortgage – interest-free loans – flexi-time – great sports and social club! Ref: CG1038.

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Successful systems house specialising in IBM COBOL PL/1 or ASSEMBLER can give keen young analyst/programmer opportunity to broaden their applications experience – essential for senior roles or a move into consultancy. Very good travel and local amenities + variety and client contact + top-quality projects. Ref: CD421.

TRAINING IN USA

CUSTOMER ENGINEERS **£££s + car**
U.K./EUROPE

Our client holds important contracts in the publishing field and offers unique opportunity to a keen young engineer interested in variety, customer contact, problem-solving and promotion. Training in USA – you will be based in UK with some travel to Europe. Above average basic salary, car, training and generous holiday leave and allowances. Dramatic expansion – very urgent!

STOP PRESS: Customer Support Engineers – London – Essex – Midlands/North. £12-13K + car. Digital 8-16-32 bit. Must be promotable. Ref: EM028.

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Start at £7-8K as Electronics Technician in test, fault-finding, trouble-shooting – all the way from Repair to Customer Service. Within about 2 years you will be considered for promotion and other responsibilities. If you have some 'hands-on' experience and technical qualification, call today. Ref: EM118.

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PROGRAMMERS

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We require a Manager to take responsibility for our computer operations. Currently, we operate a twin 2966 DME configuration supporting, 24 hours a day, an integrated on-line reservations system, operating 7 days a week, 363 days a year. The terminal network covers 11 sites in the U.K. and on the Continent. We also operate a Viewdata reservation service via a MODCOMP f.e.p.

The successful applicant, male or female, will have several years' experience of ICL 2900 systems. Involvement in transition from DME to VME will be of particular interest. In-depth knowledge of communications and experience of working with British and Continental PTT's is considered to be a vital aspect of the job.

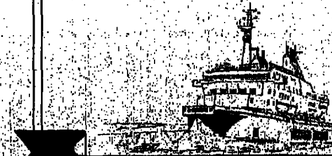
This is an excellent opportunity for a DP professional to join one of Britain's most progressive companies.

The salary is negotiable and conditions of employment, which include concessionary travel and relocation expenses, where appropriate, will all prove very competitive.

If you consider yourself firstly to be a self-motivated Manager, possessing the necessary technical expertise to compliment your man management skills, apply in the first instance, with C.V. to:

Derek Weaver, Senior Personnel Officer, Townsend Thoresen, 1 Camden Crescent, Dover, Kent, CT16 1LD. Tel: 0304 204040.

Closing date for applications 20th December 1982.



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Exceptional and challenging opportunities exist for Senior Specialist Programmers to join an international company, highly regarded, and considered a leader in its field. Major projects using "state-of-the-art" technology require degree or equivalent qualified senior programmers. Applicants should have considerable technical programming skill ideally using CORAL 66 and ADA compilers. Specific experience in technologies such as signal processing, communications and H.F. is essential. The company has modern premises situated in a semi-rural environment and will provide comprehensive relocation assistance where necessary. An excellent benefits and remuneration package will be offered and career opportunity is outstanding. Ref BW/20

PROGRAMMERS AND ANALYSTS
IBM, IMS, COBOL
WARWICKSHIRE
£7K to £12K, RELOCATION

Ideally you will have extensive on-line system experience in the automotive industry. You will be joining new project groups with a substantial UK company whose products are renowned in their field worldwide and whose business has continued to expand in spite of the recession. Ref MH/23

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DISK SYSTEMS TECH SUPPORT
UK, MOST AREAS
TO £10.6K, CAR, BONUSES

For these positions you must have good disk experience such as CDC or FUJITSU on PDP/11 or VAX systems. This is a large American company with rapidly expanding European activities. Excellent career prospects. Ref DD/22

SALES—MINI COMP SYSTEMS
READING, SOUTH WEST, B'HAM
QE £24K, CAR, BUPA

This is selling hardware plus applications packages in the range £4k to £300k, to medium size businesses. We give £8k basic and require 2 years relevant sales experience and good knowledge of business and accounting systems. Large inter-national, fast growing company with excellent career prospects. Ref DD/18

MINI BASIC SOFTWARE SUPPORT
UK, ALL AREAS
£8K, CAR, BUPA

You will be writing and installing software packages and enhancements in mini BASIC. Your background will have been perhaps with DG or WANG systems. Customer support experience desirable but not essential. Ref DD/21

WE HAVE MANY OTHER VACANCIES—IN PARTICULAR:

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SYSTEMS ANALYSTS—MANUFACTURING INSURANCE APPLICATIONS.

ENGINEERS—FIELD MAINTENANCE, DESIGN, SYSTEMS, R & D.

SALES—STORAGE EQUIPMENT, MICRO COMPUTERS, DEFENCE SYSTEMS

Please forward to us a copy of your C.V. or use the adjacent FREEPOST coupon to register your interest in one of the above positions and we will send you an application form. Alternatively, telephone us on our office number below, during normal office hours, or phone Barrie Witt on 06845 66477 or Digby Dyke on 06845 2210 evenings or weekends commencing Monday, 13th December. We look forward to helping you advance your career.

DEVELOPMENT PROGRAMMERS
To £9K
GLOUCESTERSHIRE

A world leader in its technology, our client seeks to recruit additional programmers to join project teams. Applicants should be degree qualified or equivalent in a numerate discipline and have a minimum of 2 years development programming experience gained in a real-time environment. Specific experience should include Assembler or a high level language using structured programming technique: Z80 or 9900 assembler code experience would be very relevant. The Company can offer excellent career opportunity and considerable technical challenge. The comprehensive remuneration package will include relocation assistance. Ref BW/10

SALES—MINI COMP SYSTEMS
UK, ALL LOCATIONS
1983 QE £38K, CAR, BUPA, RELOCATION

These are the most exciting prospects for the cream of the mini computer sales business we have ever been involved with. Our client is an international company, and is expanding its presently small UK sales force by offering the most competitive earnings package for 1983—but only to the most successful and highest calibre salespeople available. Products include Small Business Systems, WP and Mini Computer Systems, complete with applications packages. There will be rapid promotion for some to Branch Manager and a 5 day trip to a sunny resort (probably Jamaica) for the top sales performers of 1983. Interviews will be held in London, Birmingham and Manchester by our Managing Director, Digby Dyke, and then by our Client's representative in late December or January. Ref DD/26

ELECTRONICS DESIGN ENGINEERS
RADAR OR MICROWAVE
SOUTH EAST

New developments have created significant opportunities for qualified engineers to join teams at various levels from engineer to Principal Engineer. Applicants should have a minimum of 3 years analogue or digital experience gained on Radar, Microwave, or signal processing applications and the desire to make a significant contribution to innovative technology. Remuneration will be dependent upon experience and level of appointment and where appropriate assistance with relocation will be provided. Ref BW/25

SENIOR SOFTWARE ENGINEERS
TELECOMMS AND MILITARY
£7.5k—£14k SOUTH and WEST

(Two clients) for the TELECOMMS positions we require real-time high level or Assembler experience, and for the MILITARY positions any real-time experience but CORAL 66 is preferred. Team leadership experience required for most positions. Ref BHW/19

SALES—COMMUNICATIONS PRODUCTS
GLASGOW and S.E. ENGLAND
£11K BASIC, CAR, BUPA

You need not have sales experience, but a good grasp of communications systems products is essential; perhaps gained on CMC, Rediffusion, DG or Racal systems, for example. HNC or Degree is desirable. Gross income is likely to be c. £14k in first year. Ref DD/24

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EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

INTERNATIONAL

Assembler, DOS/VS COBOL, ICL 2900, VME/B FOCUS, RAMIS or NOMAD	Programmers All levels Analyst/Programmers	Paris Kuwait USA
UK COBOL, IMS/DB and/or DC, ADF	Programmers, Programmer/Analysts	Home Counties; Worcestershire; Essex.
COBOL, WANG IMS/DB VM or MVS COBOL, ICL ME29, IDMS COBOL, ICL2900, VME/B PASCAL, T.I. FORTRAN, BASIC, ALGO	Programmers Database Administrator System Programmer Programmer Programmer Programmer Project Leader/ Analyst/Systems Engineer	London Home Counties London Oxfordshire London Bedfordshire Cheshire
ADABAS, NATURAL COBOL, HP3000 Assembler and/or COBOL, CICS RPG II S/34, Maspics NOMAD, RAMIS, FOCUS, and INQUIRE	Programmer/Analyst Programmers Programmers, Programmer/Analyst DP Manager Programmer/Analyst	London London London London Home Counties

For more information please contact:
Group Resources Department
TANGENT COMPUTER SERVICES LTD.
102/106 South Street
Romford
Essex RM1 1RX
Tel: Romford (0708) 750201
(24-hour answering service)

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OPERATORS

Sedgwick

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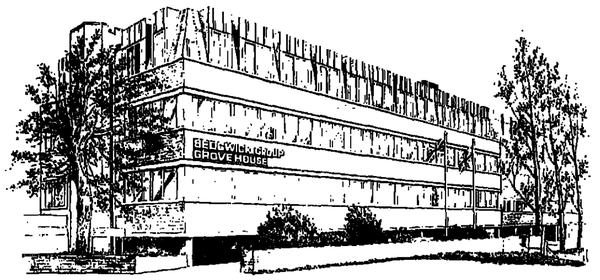
Sedgwick are proud that they are the leading UK multinational broking group operating worldwide, handling insurance business originating from 108 countries. Some of the world's largest and most complex projects in aerospace, oil exploration, nuclear energy and construction, involving expenditure running into billions, rely upon advice and service from a firm like Sedgwick—wouldn't you be proud too?

Sedgwick take equal pride in their dynamic and innovative DP set-up. Following recent breakthroughs in the field of integrated text and data processing, utilising a range of IBM 8100 hardware, the coming months will see a significant upgrade and expansion in hardware, software and information processing techniques. The current line-up of IBM mainframes will be augmented, in mid '83, by the arrival of an IBM 3083, and large on-line and database developments are already underway. (DEC minis are also used to support the group operation.) To maintain this impressive record, the company offers excellent training facilities, so you too, can become part of Sedgwick's success.



Sedgwick are justifiably proud of the location of their offices in Witham, right in the heart of the Essex countryside. Apart from fresh air and open space, the area offers good low-cost housing, plus excellent road and rail links with London. The Witham complex offers a spacious and carefully planned working environment, utilising the latest office technology. In addition to this there are free restaurant facilities, free life assurance, excellent pension scheme and an active sports and social club.

SYSTEMS ANALYSTS
Up to £14,000

You will analyse user requirements, design computer based solutions, and produce specifications to detailed design level.
You have approximately 2 years analysis experience, a programming background and ideally a knowledge of T/P Systems. Experience of IBM, DEC Minis would also be advantageous.

PROGRAMMERS
Up to £10,000

You will write, amend and maintain programs from program specifications and code and test programs as necessary.
Your experience includes one or more of the following:-
Assembler, COBOL, T/P Systems or DL/1 and also IBM mainframe, 8100, DEC or mini hardware.

LEAD PROGRAMMERS
Up to £12,500

You will design, write and amend programs, and supervise a small team.
Your experience includes in-depth knowledge of one or more of the following: Assembler, COBOL, T/P Systems, DL/1 and also IBM mainframe, 8100, DEC or mini hardware.

SOFTWARE PROGRAMMER
Up to £12,500

Reporting to the software programming manager, you will be responsible for the installation and maintenance of teleprocessing and 8100 system software on the group computer systems. You may also be required to supervise a small number of similar staff.
You have a minimum of 2 years IBM experience using Assembler—preferably with a knowledge of CICS.

For an informal chat regarding Sedgwick, call Andy Beacham on 01-734 7394 or on 01-223 8507 evenings and weekends OR fill in the coupon below and we will send you further details.

...OF WHERE WE ARE.

WARWICK WOODWARD
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Please send me more information on Sedgwick
Name:
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Currently we are looking to fill the following vacancies....

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IBM IMS DB DC ADF COBOL	Analyst/Programmers
IBM 4341 DL1 COBOL	Programmers

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ICL DRS20 CIS COBOL	Programmers
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ICL 2900 VME/B IDMSX TPMS	Designer/Analyst
ICL VME/B IDMS TPMS	Analyst/Programmers
ICL 2900 DME GEORGE 2 TP TOTAL	Programmers
ICL 2900 IDMS	Specialist

OTHERS

ANY MINI + PROCESS CONTROL (HERTS)	Analyst/Programmers
PRIME FORTRAN (JANUARY CENTRAL LONDON)	Analyst/Programmers
FORTRAN + GRAPHICS	Analyst/Programmers
FORTRAN + GRAPHICS (ABERDEEN JAN/FEB)	Analyst/Programmers
GRAPHICS EXPERT WITH INTERGRAPH (ABERDEEN)	Analyst/Programmers
HP 1000 ASSEMBLER + FORTRAN	Systems Engineer
BURROUGHS 6900 COBOL DMS 2 GEMCOS	Programmers
PDP 11/70 BASIC + 2 (JAN)	Programmers
WANG VS COBOL	Programmers
ANY MINI/MICRO PASCAL	Analyst/Programmers
HONEYWELL LEVEL 64 GCOS COBOL IDS/TDS (MIDLANDS)	Programmers
VENTEK DATAPOINT DOS DATASHARE (MIDLANDS)	Programmers
CMC DATA BASIC (MIDLANDS)	Programmers
HP3000 FORTRAN SCIENTIFIC (ABERDEEN)	Programmers
BURROUGHS 6800 (JAN START)	Programmers
VAX 11 BASIC	Systems Analyst/Project Manager
BURROUGHS 6800	Technical Writer
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DATA GENERAL RDOS FORTRAN	Analyst/Programmers
MOTOROLA 6800 PASCAL	Analyst/Programmers

HOLLAND

URGENT ON GOING REQUIREMENTS FOR

(1) Analysts and/or with VMS FORTRAN +/– MACRO 11
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WE ALSO HAVE VACANCIES OVERSEAS INCLUDING CONTRACT POSITIONS IN **SAUDI ARABIA**

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then contact KELLY at **Computer Search Contracts**

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P.S. PERMANENT STAFF
If you are in permanent employment but are tempted by this ad. then just give us a call and we can tell you more about the world of contract employment.

(1936)

Operations Controller/IBM Sys.34 Suffolk/Relocation Package

Our client, a manufacturing division of the Qualcast Group, based in the heart of the Suffolk countryside is seeking a first-class Operations Controller to take charge of their System 34 site.

The Operations Controller will be responsible for the effective and efficient operations of all computer systems both in the computer room and in the user departments.

The successful applicant will be aged between 29-40 with a sound technical background on System 34, a knowledge of Maapics would be advantageous. The appointment involves an element of hands-on operating and in addition you must possess good administrative skills and the ability to communicate at all levels. Ideally you will have 1-2 years experience in a similar position within a small D.P. environment.

The company can offer you a relocation package to this delightful part of the country.

For further details on the position, please contact Lynne Redgrave on 01-836 8411 (office hours) or 01-311 3099 (evenings and weekends). or complete the coupon below and post to FREEPOST, CoOperators, VLI House, St. Martins Lane, London WC2N 4BR.

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(Eve/Wknd) _____
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European Systems Development

Negotiable Five Figure Salary plus Car

Hertz is embarking on a major development programme involving an IBM mainframe database system, an extension of its International Reservation Network in Europe, and further development of its country mini computer systems.
An immediate need exists for two additional Systems Professionals.

Business Analyst

This position reports to the Director of Systems Planning and will involve developing detailed specifications for an advanced Rental Car System. The candidate for this position should be able to demonstrate a successful track record in the development of commercial systems and is probably now employed in a consultancy capacity or as a Systems Analyst with a strong user bias.

Senior Systems Analyst

This appointment calls for an experienced Systems Analyst who has a good technical background in mini computer applications. He/she will work within a Pan European systems team on TI 990 mini computers. The position represents an ideal opportunity for someone with an evenly balanced technical and user orientation developed within a mini computer environment. COBOL is the programming language currently in use.

Hertz® WEST LONDON

Both positions are crucial to our 1983 development plans and therefore, as you would expect, attractive remuneration packages are on offer to include company car scheme and relocation assistance.

For immediate consideration contact **Andrew Carter** or **Adrian Hardy** on **01-935 0671** (24 hour answering service) or **Ashford (07842) 46026** evenings and weekends.

(19361)

Technical, Sales & Management Appointments
SCR Specialist Computer Recruitment Ltd

SOUTH James House, 46 James Street, London W1M 5HS 01-935 0671/486 0461
MIDLANDS & INTERNATIONAL 35-37 Great Charles Street, Queensway, Birmingham B3 3JY 021-236 3761
NORTH International House, 84 Deansgate, Manchester M3 2ER 061-833 0427
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North London/Herts. Greater Manchester.

Basic Salary up to £10,000 per annum

plus a 1.6L Company Car and attractive fringe benefits

Our client, an independent member of a major industrial group, designs, manufactures and markets a powerful range of mini-computers and associated products. These high performance computer systems serve many different aspects of industry, including:

★ **Scientific Research** ★ **Information Processing**
★ **Industrial/Process Control** ★ **Engineering Design**
★ **Communications**

Increasing demand for their recently announced models, which include many advanced concepts, has led to an expansion of the Company's sales activities including that of their intergroup customer base. This has a specialist team responsible for promoting the entire range of products, to the Groups large Engineering Organisations.

To take advantage of this superb opportunity as a fully trained Sales Engineer for mini computer Systems, you should be aged 25/35 and preferably a Graduate of HNC/Degree standard in Electronics, Computing or a related field. You must have a track record in the Computer Field and a personality suited to a sales environment, enabling you to demonstrate the ability to promote and sell mini computer systems.

For the North London/Herts based position – Please contact **Peter Dudgeon** on **01-935 0671** (24hr answering service) or on St. Albans 37702 evenings between 8 and 9 p.m.

For the Greater Manchester based position– Please contact **Paul Henry** on **061-833 0427** (24hr answering service) or on **051-924 2868** (evenings and weekends)

11825I

Technical Sales & Management Appointments

ISCR Specialist Computer Recruitment Ltd

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NORTH: International House, 84 Deansgate, Manchester M3 2ER, 061-833 0427
BELGIUM: Avenue Louise 327, Boite 4, 1050 Bruxelles, 010 322-6407151/71
HOLLAND: Willemsparkweg 92, 1071 H.M. Amsterdam, 010 3120-760947

BORED?
Ring the changes
021-622 6181 or 0532 431522

Now is the time to reconsider your position and make plans for the New Year. The first step is to ring RTC in Birmingham or Leeds for a confidential discussion on the opportunities available for **Designers** and **Programmers** with **REAL TIME** experience.

There are many exciting opportunities in both the **U.K.** and **EUROPE** during 1983 for people with good experience of **Military Systems, Telecommunications, Research** or **Industrial Process control.** In particular we want to speak to **SYSTEMS PROGRAMMERS** with **RSXIIM, VMS** or **UNIX** experience, also those familiar with **MASCOT.** RTC has a proven track record in the areas of: **Process control, Telemetry, CAD/CAM, Modelling, Simulation, Weapons control,** Radar & **Sonar** systems, **Embedded** software, **LAN's, Communications** and **Operating Systems** support. We are also developing our own software in the field of **Office Automation.**

Due to increasing requirements from established clients (which include many of Europes largest electronics companies) we wish to recruit both **Permanent** and **Freelance staff** to supplement existing teams.

Apart from those mentioned above we also need people for work on a wide variety of **mini's** and **micro's** using **Assemblers plus** the popular **High Level languages.**

e.g. HP, DEC, DG, GEC, Ferranti, Perkin Elmer, TI990, Z80, Intel 8085/6, M6800/6809, M68000, RTL/2, PASCAL, PL/1, PL/M, CORAL 66, 'C', ALGOL.

CONTRACTS: £350–£900/wk.
IMMEDIATE STARTS
3 months to 3 years durations.
U.K., EUROPE and U.S.A.

PERMANENT: Salary £ neg + car + usual benefits. To join small but expanding team involved in both inhouse software development and consultancy services. The ideal candidate would be Midland-based (relocation considered) but willing to travel, with a broad experience of real time programming and/or design.

Do you have the skills and courage to 'RING THE CHANGES' for '83, by phoning RTC? NOW!!!

Ask for JANET (Birmingham) or SUE (Leeds).

RTC Real Time Computing Ltd
Head Office: Monaco House, Bristol Street, Birmingham B5 7AS, Tel: 021-622 6181
North: 51a St. Pauls Street, Leeds L1, Tel: 0532 431 522

The EUROPEAN SPACE AGENCY invites applications from

SCIENTIFIC DATA HANDLING SPECIALISTS

(ASTRONOMERS, SYSTEMS ANALYSTS, PROGRAMMERS)

for ESA posts which have assigned duties at the

SPACE TELESCOPE SCIENCE INSTITUTE

located on the Homewood Campus of the John Hopkins University in Baltimore, Maryland, USA

ESA has undertaken to provide personnel to the ST Science Institute as a part of its collaboration with NASA on the Space Telescope project. The ESA personnel will be on assignment from the Science Directorate of ESA to the ST Science Institute, which is operated by AURA under a contract from NASA. These posts will be filled from 1983 onwards.

Among the foreseen vacancies are:

ASTRONOMERS – SCIENCE DATA ANALYSIS PROJECT, with experience of large scale analysis systems and digital imaging or spectroscopic data sets. Candidates should also show evidence of ability in supervising programming personnel, guiding programme design/development and reduction algorithms and software evaluation.

SCIENTIFIC SYSTEMS ANALYST, to work on the scientific data analysis software project. Candidates should be scientists with an astronomy background and experience in systems analysis work on large scale data systems and on digital imaging or spectroscopic data sets.

SCIENTIFIC DATA ANALYSIS SOFTWARE SPECIALISTS, of graduate level with substantial programming and systems analysis experience on large data sets from astronomy instruments.

SYSTEMS ANALYST – MISSION OPERATIONS & PLANNING, to undertake systems analysis work in connection with the development of the procedures and techniques for the planning and scheduling of ST observations. Candidates should be of graduate level and have considerable experience in related analysis work.

Supernumerary contracts of a fixed term duration of 4 years will be offered to successful candidates. Salaries (free of US taxes) and social benefits for these posts are commensurate with the responsibilities. They include in particular expatriation and family allowances, good social security, education allowance.

Applications, accompanied by a detailed curriculum vitae should be addressed to the Head of Personnel, ESTEC, Postbus 299, 2200 AG Noordwijk, the Netherlands not later than 10 December 1982, stating for which post(s) they are made.

NSH ASSOCIATES

BRANCH MANAGER– WORD PROCESSING CENTRAL LONDON

£30,000

We have been trying to write an advertisement that conveys the exceptional opportunity that our client is offering.

After much consideration and heated discussion, we decided that the message should be clear and simple.

We want to interview outstanding word processing professionals for one of the most exciting career positions to become available this year.

To be considered you must have an exceptional track record in sales and proven experience of management within the industry.

If you feel you are suitable for the position, please ring **NEIL HADFIELD** in complete confidence quoting reference no. JT 101.

205 VICTORIA STREET, LONDON SW1E 5NE.
TELEPHONE: 01-828 1574/1327

David Grove Associates
Bank Personnel Recruitment

BANKING SYSTEMS PROGRAMMERS

INTERNATIONAL BANK **£ NEG + Benefits**

Leading International Bank require Systems Programmers to have worked with IBM 370/148 and programmed in ASSEMBLER; additional experience of CICS, VSAM & VM will be a considerable advantage. The successful candidate will be assigned to control programming operations.

ANALYST/PROGRAMMER

CIRCA £10,000

An International Bank would like to meet an Analyst Programmer who has previously worked with IBM 34, preferably in a Bank.

This position will also require the willingness to train on DEC PDP11 and learn BASIC.

For more information please contact Beverley Collins on: 01-236 7961.

11994

David Grove Associates 60 Cheapside London EC2V 6AX Tel: 01-248 1858

DRAWS CAD CAM BUREAU
MARKETING/GENERAL MANAGER
circa £18,000, car, profit share

Draws is a successful CAD CAM Bureau offering Mechanical and PCB design, mapping services, consultancy and training

With our pending move to new purpose built premises and the expansion of our training facilities we are looking to appoint a self motivated person to the above position

The successful applicant will be 30-40 years old and have a proven background in the sale of CAD CAM services with a comprehensive understanding of the requirements of the industry

Applications should be made, in writing, to:
Dr. J. Sargent, Draws
77 Wales Street, Winchester, Hampshire

SHROPSHIRE COUNTY COUNCIL
HIGHWAYS AND TRANSPORT DEPARTMENT
HEADQUARTERS ENGINEERING SECTION

Applications are invited for the following post:

TECHNICIAN
(COMPUTER APPLICATIONS)
T2/4 (£5,352-£7,545 p.a.)
Temporary appointment up to three years

Applicants must have programming experience, preferably in FORTRAN. Knowledge of Highways Dept an advantage. May suit graduate with less experience.

Closing date: 4 January, 1983

Application forms and further details available from the County Surveyor, Shirehall, Abbey Foregate, Shrewsbury, Telephone Shrewsbury 222366 or 222363. (1991)

PERTH & KINROSS DISTRICT COUNCIL
Finance Department

COMPUTER PROGRAMMER
Salary Scale – APIV £8085-£8949

Applicants must have a minimum of two years' practical COBOL experience. Knowledge of Local Authority systems would be an advantage as the successful candidate will be expected to participate in all activities within the Computer Section and liaise with the Computer Manager. The Council has a disc-based NCR 8200/8251, using an interactive multi-programming operating system and will shortly acquire an NCR 9010 for systems development. Consideration is also being given to upgrading the existing computer hardware.
Systems currently in use are:– rent accounting, financial accounting/budget control, payroll and direct labour organisation/stores. The development plan includes both new applications and modernisation of the present systems where necessary.
Starting salary will depend on qualifications and experience. Assistance with housing and removal expenses will be considered in appropriate cases.
Further particulars and application forms are obtainable from the District Personnel Officer, 11 Tay Street, Perth, Telephone Perth 21161 Ext. 263). Closing date for receipt of completed applications is 30th December 1982. (1993)

MICRO COMPUTER ENGINEERS
£Neg plus company car/Surrey

Due to rapid expansion we are seeking a micro-computer engineer. The successful applicant will have appropriate experience in the maintenance and repair of computer equipment. He/she will have a positive personality and be able to operate effectively with minimal supervision.
A good salary will be commensurate with experience.

For further details please contact
Miss S. Galbraith,
Ferguson Computers Ltd.
4 Pyrford Road
West Byfleet
Surrey.
Tel: (09323) 46344 (1994)

THE WEST COUNTRY

YOUR SIGNPOST TO A BETTER FUTURE TO £12K

Amongst the many vacancies in both South Wales and the West Country, exist some that are not only very urgent but particularly exciting.

DEC

Senior Programmers/Software Engineers are urgently needed within manufacturing and service industries throughout the region. PDP11, VAX, LSI-RSX11, RT11, VMS-Pascal, Coral, Fortran, Assembler, Basic; knowledge of all would be nice, but unlikely.

HP

RT HP 1000 or Desk Top experience could well lead you to a career which not only offers financial rewards befitting ability, but also a real and exciting future.

MICROS

Z80, Intel, TI, Motorola expertise urgently needed in many diverse locations. Your chance to be part of the development of our future.

Keep ahead of the developments in this fast-expanding region, and LET AB SHOW YOU THE WAY.

AB Executive (Bristol) Limited, Tel: Bristol (0272) 426631 (24 hours). 8GY (1898)

ab

PANSOPHIC SYSTEMS (UK) LTD. require

SYSTEMS SUPPORT CONSULTANTS

Package to £16K including car
LONDON

To consolidate our growth we are seeking experienced professionals whose duties will be to provide pre and post sales support and customer training in all our products.

Applicants should have a minimum of 4 years IBM mainframe experience, experience of a high level language (COBOL/PLI) and of DOS/OS operating systems, probably gained in operations, applications programming and systems programming environments.

Knowledge of our product range (EASYTRIEVE/PRO/grammar/PANVALET/PANEXEC/PANAUDIT/OWL/MISOL) would be an advantage.

Please write enclosing c.v. to: Dick Moore, Pansophic Systems (UK) Ltd. Alpha House, Wythenshawe, Manchester M22 5RG. Telephone: 061-436 1415

Applications should be received by 31st December and interviews will be held in London in early January. (1910)

PANSOPHIC

Discover the Source of Software Solutions

SYSTEMS ANALYST

The Diesel Division of Rolls-Royce Motors Ltd., a Vickers Company, occupies an important position as a leading manufacturer of high-speed diesel engines used in automotive, marine and industrial applications throughout the world.

Currently our DP installation has an IBM 4331, 1 megabyte system, shortly to be upgraded to 4 megabytes, operating under DOS/VSE with CICS and DL/1 just installed. A new IBM 4341 mainframe is planned for next year.

A major project involving IBM COPICS application software is imminent and an exciting opportunity now exists for DP professionals to join an expanding team dedicated to the successful installation of manufacturing systems across the company.

Candidates should have at least four years' formal Analysis and COBOL experience, preferably with COPICS applications in a manufacturing or production environment.

The appointment offers the successful male, or female, candidate a challenging opportunity in a busy, developing department, with genuine promotional opportunities.

The employment package is excellent including competitive salary, contributory pension and health schemes and generous relocation assistance to this most attractive part of the country.

Please write now with details of age, qualifications and salary to:
Mike Owen, Personnel Manager, Rolls-Royce Motors Ltd., Diesel Division, Whitchurch Road, Shrewsbury.

ROLLS ROYCE — A Vickers Company

INNER LONDON EDUCATION AUTHORITY

CHELSEA SCHOOL OF ART, MANRESA ROAD, LONDON SW3 6LS
Tel. No.: 351-3044

COMPUTER TECHNICIAN GRADE 5

Required for the Department of Design Studies, Lime Grove, W12. The successful applicant will be experienced in microcomputing and familiar with BASIC and PASCAL languages. The post involves responsibility for developing computer usage and integrating it into the school's three DATEC higher diploma courses in design subjects, with particular reference to computer graphics.

Applicants should have at least HNC, HND, Advanced City and Guilds, or equivalent qualifications and a minimum of 5 years' experience (including training period).

Salary Scale: £6,008 to £7,017 plus £1,067 London Weighting.

Application forms are available from and should be returned to the college within 14 days of the appearance of this advertisement.

ILEA is an equal opportunities employer. 1852

SALES EXECUTIVE

South East

To sell the market-leader range of viewdata terminal systems.

Tandata is growing rapidly, and this ground-floor opportunity will suit an enthusiastic salesman/woman seeking to join a young organisation at the right time.

The successful person will be young and well-educated, with sales experience, preferably in computer terminals or micro-computer systems. Full viewdata and product training will be provided.

The territory will include a major part of London and the Home Counties. A company car will be provided, and earnings well into five figures can be expected. Other benefits include four weeks holiday and a pension/life insurance scheme.

To apply, please write, with details of background and experience, to Peter Dodds, Sales Director, Tandata Marketing Limited, Cissa International, Wells Road, Malvern, Worcs.

Tandata

CITY OF COVENTRY
TILE HILL COLLEGE OF F.E.
TILE HILL LANE, COVENTRY CV4 9SU
Principal: Dr H. E. Avery
Required for January 1983:

LECTURER I — COMPUTING/DATA PROCESSING
TEMPORARY LECTURER I — COMPUTING/DATA PROCESSING
(To the end of August 1983, to cover for maternity leave)

For both posts candidates should have industrial/commercial experience; a knowledge of COBOL and/or Small Business Systems would be an advantage.
Salary: £5366-£9267.
Application forms and further particulars from the Principal, to whom they should be returned by Friday, 10th December, 1982.
An Equal Opportunity Employer. (1830)

Tile Hill College of further education

HONEYWELL L64 PROGRAMMERS

With a knowledge of OS3000 and L64 COBOL required to assist in the conversion of existing files and to develop further Life Assurance Systems.
SALARIES c. £9,500.
Conditions of employment include LV's, P.P.P. and Non-Contributory Pension Scheme.
Please write with full career details and current salary to;

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Swan Court
Petersfield
Hants.
(1979)

QED — **PRODUCT DESIGN**

MICROPROCESSOR ENGINEER

A senior post exists for an experienced microprocessor engineer to join our expanding independent Design Consultancy. We have a good turnaround of innovative micro based products and the post will suit a creative engineer with a 70/30 software to hardware bias. A degree and 3/4 years experience is essential and a knowledge of operating systems on microcomputers and the 8088 would be advantageous. We offer a £10K plus salary and some small company benefits. Full C.V. in confidence to:-

QED Product Design Consultants, Clarence House, Clarence Place, Newport, Gwent.
1858

Ambitious Analyst/Programmer with management in mind

Basingstoke: Publishing: Package to £10,000

Our client, a household name in paperback publishing, wishes to strengthen its small DP team.

You will be responsible to the Computer Manager for the day-to-day control of development activities and 3 support staff in a fast changing absorbing environment where facilities are virtually used to capacity.

This appointment is seen as a development role with positive prospects of promotion to Computer Manager for someone who makes their mark.

You should have experience of on-line applications, ideally in a PDP 11 environment operating under RSX 11M+, and have at least two years' programming experience in a high-level language with some experience in operating. Formalised business analysis experience is required. Applications include on-line order entry, stock accounting, integrated ledgers, statistics and teleordering with future applications including an authors' royalty system.

Earnings quoted include an attractive salary plus bonus scheme. Major company benefits apply.

Please write with full details. These will be forwarded direct to our client. List separately any companies to whom your application should not be sent. Ref. FY1221.

This appointment is open to men and women.

ASL CONFIDENTIAL RECRUITMENT — 17 STRATTON STREET LONDON W1X 6DP
A member of MSL Group International

The newly set up Computer Division to be based on the IBM System 38 presents an opportunity and a challenging environment for experienced and flexible computer professionals. Present systems both batch and manual will be terminal based to allow user departments access to the corporate data bases. We are looking for people whose track record shows they can respond to the responsibilities inherent in the proposed development.

PRINCIPAL COMPUTER OFFICER
PO 5-5, £11,565-£12,498
The person appointed to this position will work in the Finance Department Computer Division assisting the Computer Manager in developing, co-ordinating and controlling this new division. Responsibilities will include analysis, programming and operations. Applicants must have five years' experience in analysis and programming with at least two years' in a supervisory capacity. He/she should also have experience in the setting up of a new online installation. A computer orientated degree and membership of the B.C.S. or I.D.P.M. would be advantageous.

SENIOR ANALYST/PROGRAMMER
AP 5 – PO 4, £9,231-£11,199
The successful applicant will work in the Finance Department Computer Division assisting in the development and implementation of computer systems. Responsibilities will include design, analysis and programming. He/she will be expected to contribute to establishing standards within the division and to a good working liaison with user departments. Applicants must have four years' experience in analysis and programming with an emphasis on online systems and project leading. A computer orientated degree and membership of the B.S.C. or I.D.P.M. would be advantageous.

Application forms which should be returned not later than Friday, 17th December, are available from: Personnel Services, Room 1.20, Municipal Buildings, 5 Cotton Street, Paisley PA1 1BU. Telephone 041-889 5400, ext. 434. (1922)

Renfrew District Council

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2 PROFESSIONAL SALESPERSONS

Computer Software — **To £20k**

One based in the South of England and one in the North

An opportunity has arisen for self-motivated sales professionals to join one of the country's leading software houses specialising in the Legal Profession.

The successful candidates will be aged under 45 and possess the motivation, experience and enthusiasm necessary to operate on their own initiative and successfully implement our sales plans in these areas. Familiarity with computers and their applications is essential as is the ability to negotiate with members of the legal profession. Total rewards, including commissions, are as indicated together with car and pension scheme.

Call Mr Fletcher
0532 46184

COMPUTER ENGINEER

A vacancy exists for a person to build digital PDP11 systems in-house and will also be required to assist in our board repair department

DEC experience is absolutely essential

Salary negotiable

For further details please contact Lambart Computing on Maidenhead 72037
(1941)

Recruitment Consultant

NEW DIVISION — CONTRACT

Buick Computer Services was formed in 1979 and is a highly reputable recruitment consultancy respected by the Data Processing Industry for supplying all levels of permanent DP staff.

To meet the needs of our expanding consultancy we wish to appoint a Contract Consultant specialising in Data Processing personnel at all levels.

He/she must have an outgoing personality matched with good business acumen and essentially must have the ability to form and create a good working team.

In return we offer an excellent starting basic salary plus commission structure and long-term prospects leading to management.

If you are interested please call **01-834 0061 (10 lines)** and ask to speak to the Managing Director, or alternatively write to him at the address below enclosing your curriculum vitae.

All enquiries will be treated with the strictest confidence.

RECRUITMENT DIVISION
72 Rochester Row
Victoria · London SW1P 1JU

As a result of its future development plans, our client, a major UK Company, requires two individuals to join its London-based Computer Centre, as part of a small team of dedicated DP professionals within an IBM GSD environment.

SYSTEMS ANALYST *c£13,000*

This position would ideally suit someone wishing to take a leading role in the development of major online commercial systems, coupled with the desire to move into DP Management. The successful applicant must have sound business systems experience, preferably with RPG2/3 or structured programming background.

PROGRAMMER *c£9,500*

This position will provide someone with an excellent opportunity to work within a small team involved in the development of integrated commercial applications, which affords the opportunity of eventually moving into analysis. The successful applicant must have at least 12 months' RPG3 experience, and must be prepared to gain knowledge of a low level language.

Excellent benefits for these two positions include BUPA, free lunches, and interest-free loans.

For further details, please call **01-834 0061 (10 lines)**, and ask to speak to the Managing Director, or write to him at the address below enclosing your curriculum vitae.

RECRUITMENT DIVISION
72 Rochester Row
Victoria · London SW1P 1JU

ALL THE STAFF OF BUICK COMPUTER SERVICES WOULD LIKE TO WISH YOU ALL A HAPPY CHRISTMAS AND A PROSPEROUS NEW YEAR

RPG 2/3 PROGRAMMERS to CONSULTANT level — to £15,000
A number of our clients situated in London/Home Counties and South East England are seeking Programmers and Analysts with two-three years' RPG2 and/or RPG3 experience, preferably on System/34 and/or System/38 equipment, capable of working on their own initiative. Applications include the specification, design and implementation of a wide variety of commercial online systems. Excellent prospects where your skills are put to effective use. Some of the benefits include subsidised mortgage scheme and profit share. Ref: C9830

SYSTEMS ANALYST — CITY — £14,000 + mortgage
A leading International Bank is seeking a Systems Analyst with at least two years' experience. The successful applicant will have at least one project to credit, from design to full implementation. COBOL experience is essential. Benefits offered include a MORTGAGE and interest-free loans together with other useful Bank benefits. Ref: B9666

SENIOR ANALYSTS — LONDON — to £14,000 + car
Our client, a leading Software House, is seeking a senior person to take a leading role in the pre-sales development of new commercial packages. The successful applicant will have several years' interactive systems design experience using mini-computers.

Two other vacancies exist for Systems Analysts with BASIC or RPG2/3 experience, who are capable of handling a wide range of interactive software packages at the post-sales level, using various minis or IBM System/34 and System/38. An ideal opportunity to get into a rapidly expanding and lucrative market on a salary of £12,000+. Ref: C9669

PL1 and COBOL PROGRAMMERS — to £14,000 + benefits
A number of our clients situated in London, Home Counties and Sussex need Programmers to Team Leader level with a minimum of two years' PL1 or COBOL experience for the development of realtime systems using CICS and DL1. A knowledge of CICS would be an advantage. Benefits include bonus schemes, cheap mortgage and insurance facilities. Ref: C9601

SENIOR ANALYST — MIDDX. — £13,500 + car
Our client is seeking a Senior Analyst, capable of leading new projects from feasibility through to implementation. A financial systems background together with user liaison and supervisory skills are essential for this position. Excellent fringe benefits include provision of a company car. Excellent prospects. Ref: C9635

DEPUTY D.P. MANAGER — £13,000 + benefits
This expanding company is seeking someone to act as deputy to the DP Manager in a very busy IBM System/38 site based in London. The successful applicant will have sound commercial design experience, together with the capability of communicating with Users at all levels. A knowledge of RPG3 would be an advantage, but formal training will be given. Ref: C9670

SYSTEMS ANALYST — LONDON/ESSEX — £13,000 + benefits
A minimum of three years' experience is required for this major ICL user. Ideally, the applicant should be familiar with financial/insurance applications. An excellent salary, which is under review, carries many attractive fringe benefits including mortgage facilities, 5 weeks' holiday and flexi-working arrangements. Ref: B9683

SYSTEMS ANALYST — C. LONDON — £13,000 + mortgage
Our clients, a leading financial organisation, are seeking someone with a minimum of two years systems design experience, together with a knowledge of IMS in an MVS/JES2 environment. An excellent package of benefits includes Mortgage, profit-sharing and N.C. Pension. Ref: B9684

FORTRAN SPECIALISTS — LONDON/HOME COUNTIES — to £11,000
Programmers are required to join existing development teams to work on a variety of applications including scientific research, engineering and commercial projects. Good fringe benefits. Ref: C9841

ICL COBOL PROGRAMMER — CITY — c£9k + mortgage
An International Merchant Banking organisation is seeking to recruit a Programmer with a minimum of 18 months' experience, ideally gained within a VME/B environment. T/P and Database knowledge would also be useful. Excellent modern working environment together with monetary benefits which include MORTGAGE facility, INTEREST-FREE loans, etc. Ref: B9646

JUNIOR PROGRAMMER (any mainframe) — ESSEX — £7,500
Approximately 12 months' COBOL experience is required to join this large IBM site. Training in CICS and DL1 will be given. Flexi-working hours. N.C. Pension, and an active sports and social club are among the many attractive benefits offered. Ref: B9687

PROGRAMMER — WEST MIDDX. — c£10,000
A minimum of 18 months' experience of RSX 11 is required together with MACRO 11. A knowledge of COBAL and FORTRAN would be an advantage. This post offers an ideal opportunity to take on more responsibility and a well-structured career path. Ref: B9661

OPERATIONS

OPERATIONS MANAGER — LONDON — £13,000
Our client, a large manufacturing company, requires a computer professional with solid IBM MVS and management experience, aged 30-40, to take charge of their medium-sized Operations Department. An IBM 3083 will be installed in Autumn 1983. Ref: C9639

MVS OPERATORS — LONDON/ESSEX — c£8,250 + profit share
Two leading financial organisations are seeking Operators with a minimum of one to two years' MVS/JES2 experience. Excellent promotion prospects, and benefits include profit share and low cost insurance facilities. Ref: C9822

NETWORK OPERATOR — LONDON — c£8,000 + mortgage
This financial organisation requires a Network Operator to work in a two-shift environment using twin 4341s under DOS/VSE, CICS, with 200 terminals throughout UK and Europe. Benefits include MORTGAGE Subsidy, interest-free personal loans, N.C. Pension, BUPA, sports and social club. Ref: B9686

VME/B OPERATOR — LONDON — £7,000 + benefits
A minimum of eighteen months' experience of VME/B is essential to join this twin 2960 site, which operates a TWO-SHIFT system. Excellent prospects. Ref: B9811

DATA CONTROL CLERK (any mainframe) — SURREY — c£6,700
A leading finance company is seeking a Data Controller with a minimum of two years' experience. Any mainframe background will be considered. Excellent working conditions and benefits apply. The position is days only with occasional overtime. Ref: B9662

BUICK COMPUTER SERVICES
FREEPOST
LONDON SW1P 1YY

Tel: 01-834 5923 (Daytime)
01-834 0061 (24-hours)
Or call evenings and weekends
REF.B: 01-794 5927
REF.C: 01-942 1178

NAME.....
ADDRESS.....
Ref. No(s).....Home Tel.....

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives. (1838)

APL

c.10k to 14k

Central London

BUPA, leaders in the fast growing field of health insurance, are rapidly expanding their use of APL based systems. The actuarial department, which is a major user department, has established a continuing programme of major APL applications. These are being implemented using a powerful in-house mainframe installation linked to colour VDU's.

We have begun to build up our own in-house APL team to work with existing APL software house staff on the rapid developments required, and now wish to recruit two further APL specialists.

We are looking for one person with 5 or more years' professional APL experience, including some project management experience. We are also looking for a second person with at least 2 years' solid APL programming experience. Both candidates should ideally be graduates.

The starting salary is negotiable, depending on experience, and will not be an obstacle for the right candidate. The benefit package will include mortgage subsidy, season ticket loan, pension scheme, free BUPA and subsidised staff restaurant.

If you'd like to talk to someone capable of discussing the technicalities then you should ring Phil Chastney or Michael Moliver. Alternatively you can write to, or ring the Personnel Department for an initial meeting where we can discuss the longer term possibilities.

Personnel Department.
BUPA, Provident House.
Essex Street, London WC2R 3AX.
Tel: 01-353 9451.

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CHIEF EXECUTIVE'S DEPARTMENT

Technical Support Manager

£11,848 - £13,182 p.a.

In the Computer Services Unit to lead and supervise a team of technical support officers developing and maintaining VME operating systems, database (IDMS), transaction processing (TPMS) and various software packages.

You must have several years' experience in management of support group in 2900 environment. A good working knowledge of VME, IDMS, TPMS essential. (Ref. No. 1C/158/CW).

Technical Support Officer

£9,666 - £11,079 p.a.

To assist in support of VME operating system, IDMS, TP and various software packages. To provide technical support to computer development, user departments and operations.

Two years' experience in a technical/operations support environment essential, supporting 2900 equipment, transaction processing and IDMS experience an advantage. (Ref. No. 1C/165/CW).

Application form from and to be returned to, Departmental Staffing Officer, Room 207, Town Hall, Euston Road NW1 2RU or telephone 01-837 9988 (Ansafone) quoting reference number. Closing date: 24th December, 1982.

(1957)

CAMDEN
An equal opportunity employer

Applicants are considered on the basis of their suitability for the post, regardless of sex, race, marital status or disablement.

Instron is one of the most successful and advanced manufacturers of materials testing equipment in the world.

SOFTWARE ENGINEERS – REAL TIME CONTROL

We require software engineers of graduate standard with a background of physics, materials science, engineering or computer science to fill key positions in multi-disciplinary teams concerned with the development of standard and customised computer systems for use by material scientists in our worldwide market place.

Our vacancies would be suitable for graduates with two years experience in Fortran and Assembler and also for recent graduates from the above disciplines with programming experience in high or low level languages gained on the degree course.

Our project teams are involved in the very latest advances in hardware and software in the development of materials testing instruments.

In keeping with the high standards which we maintain we are able to offer an excellent starting salary together with a comprehensive benefits package including a non-contributory pension and life assurance scheme.

For an application form please ring the Personnel Department or write to the Personnel Manager enclosing a detailed c.v.

Instron Limited, Coronation Road, High Wycombe, Bucks HP12 3SY.
Telephone: High Wycombe (0494) 33333.

Men or women may apply

(1938)

INSTRON

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c. £14,000

Senior Programmers
Analyst Programmers
Project Leaders

S.P. Support are one of the UK's largest and most successful software houses. We are currently looking for experienced DP professionals to join our London-based operation. In return for hard work, loyalty and commitment we offer a challenging career within a stimulating environment, plus great variety of work and an above average salary.

If you have over four years' experience in a commercial data processing environment and you are looking for a new challenge for 1983 apply now.

Contact Dave Brooks or Kevin Sullivan for an application form.
S.P. Support (Southern) Ltd., 28/30 Brook Mews North, London W2 3BW. Tel: 01-258 0828.

(1963)

Brian Colquhoun and Partners
Consulting Engineers
require a

COMPUTER PROGRAMMER

ENGINEERING APPLICATIONS

For Fortran software development in a wide range of civil engineering, structural and transportation and administrative programs. The firm's computing facilities include a prime 250-11 computer and links to bureaux main frames. The successful candidate will have a sound technical background with a good knowledge of engineering problems in the above fields. He or she will also be involved in the day to day operation and control of the prime.

The post is based in large modern offices in Stevenage, Herts. Applicants should write to Mr. B. H. Lee, Brian Colquhoun and Partners, 22 Upper Grosvenor Street, London W1X 0AP (Telephone 01-491 4864) enclosing a brief curriculum vitae.

(1907)

COMPUTER PERSONNEL

SAUDI ARABIA

Applications are invited for the following positions:

Computer Operations Manager

up to £18,500 pa tax free (Ref: T10/CW)

Required to take charge of all aspects of computer operations, including data entry and control. Minimum requirements:

- Seven years' data processing experience, two of which at management or supervisory level.
- Education: at least to 'A' level standard. Familiarity with Hewlett Packard 3,000 series an advantage.

Programme Analyst

up to £16,000 pa tax free (Ref: T11/CW)

Candidates should be educated to 'A' level standard, have a minimum of eighteen months' Cobol programming experience and preferably at least one of the following:

- HP3000 Series
- Image or similar databases
- View or similar data entry package
- On line systems

NME is a large health company based in the USA and operating internationally. One of the current projects of its international division is providing an advanced fully integrated computerised hospital information system in Taif, Saudi Arabia. Taif is renowned for its climate, which is probably the best in Saudi Arabia. It is also only two hours drive from Jeddah and the Red Sea coast.

- Single status 2 year contracts
- Tax free salary (to British passport holders)
- Contract completion bonus
- Free furnished accommodation
- 2 paid return air fares to UK per year
- 56 days leave per year + 10 paid public holidays
- Meal allowance

Salary based on 5.61 Saudi Riyals to £1 Sterling (current exchange rate at time of going to press).
Write with full C.V., copies of academic and professional documents and a colour passport photograph, quoting appropriate reference, to:-

David Williams, Manager, Professional / Technical Employment, NME (Services) Ltd., 3 Albemarle Street, London W1X 3HF.

Licenced under the Employment Act 1973 No. SE0139

(1857)

NME

BOX NUMBERS

Box number replies should be addressed to:

Box Number .....

c/o Computer Weekly
Quadrant House, The Quadrant
Sutton, Surrey SM2 5AS

IMPERIAL CANCER RESEARCH FUND

PROGRAMMER

– PDP 11/44 (RSTS)

To be responsible for enhancing existing programs and developing new software in a multi-applicational environment. An interest in maintaining overall system efficiency, combined with the ability to meet the challenge of current developments is sought.

Only applicants with at least two years' recent *commercial* programming experience (BASIC preferred) will be considered for this position.

Initial salary up to £10,000 depending on experience, 5 weeks' holiday, pension scheme. For further information and application form telephone.

Ms. S. M. Hurley, Imperial Cancer Research Fund, Lincoln's Inn Fields, W.C.2. on 242 0200 ext. 306 quoting reference 35/83

(1956)

PROGRAMMER/ANALYST

Age twenty to thirty **Up to £9,000**

We operate a large IBM system 34 with both local and remote sites, utilising database technology – and we are developing on-line pricing and costing systems with an internationally recognised software house.

We require a programmer/analyst to take responsibility for programme maintenance and operations support, plus a growing share of development work. Candidates should be seeking more experience and training, both on database design and on the IBM 34, and should bring 2 to 3 years in programming with Cobol included.

Conditions are good with 4 weeks' holiday, free life assurance and a contributory pension scheme.

Please write to Anna Sive
Avery Label Systems Ltd, Gardner Road
Maidenhead, Berks. SL6 7PU

Avery Label Systems Ltd.
An Avery International Company

How would you like to work in a Software Studio?

PASCAL PROGRAMMER

Salary: Up to £12,000 p.a.

Location: Kingston-upon-Thames

This is an outstanding opportunity for a Pascal programmer with at least two years' programming experience to work in a rapidly developing exciting company. Our client is SMALLWAY LTD, a Software House specialising in the personal computer market. Based in Kingston-upon-Thames, they have a number of innovative products which are making considerable impact in the software market.

The successful applicant may have some systems experience, and ideally a knowledge of Data Base. The opportunity to develop other programming skills, such as Assembler, over a wide range of hardware will be encouraged. We are looking for someone who is excited by innovation, would enjoy the opportunity of "building" a Software Studio and would be able to make a major contribution to the development of a growing company and a growing product range.

Programmers are very important to our client. In many respects they are the life blood of the company, and they will **reap the rewards of that importance!** If you are interested in this position please send curriculum vitae to John Goldsmith.

11929)

JVG RECRUITMENT LTD
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DEPARTMENT OF MATHEMATICAL SCIENCES & COMPUTING

TEMPORARY ONE YEAR

LECTURER GRADE II/ SENIOR LECTURER IN COMPUTING

(REF X.17)

Applications are invited for the above post. Appropriately qualified candidates offering any particular expertise within the broad area of computing will be considered, but a preference will be shown for candidates with a specialism in Programming Methodology.

This post has arisen as the result of the secondment of members of the Department to specialist units within the Polytechnic – the Microcomputer Advisory Centre, and the Knowledge-Based Systems Centre. It is possible that the post may be renewable.

Salary will be in the range:
Lecturer, Grade II: £7,689 (X10) – £11,556 p.a.)
Senior Lecturer: £11,007 (X6) – £13,680 p.a.)
both scales inclusive of London Allowance.

It is hoped to appoint a suitable candidate to this post as soon as possible and so EARLY APPLICATION IS ADVISED.

Further details of the Department and its activities together with an application form may be obtained from the Staffing Office 01-928 8888 Ext 2355.

(1926)

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Computer Professionals

4, Kendrick Mews, London SW7 3HG Tel: 584 8790

City-based Applications

London: £8,500-£15,000

A long period of success has established our client as one of the leading d.p. consultancies offering a wide range of services to financial organisations.

To cope with increasing demand the company now requires additional staff who have worked within the areas of banking, insurance or stockbroking. A sound programming background is essential with IBM experience preferred but not mandatory.

Few organisations can rival the commitment and rewards offered to their staff who in return are expected to represent the company in a thoroughly professional manner. Ref: 0812/A

Project Leader

Kent: c. £14,500 incl. low-cost mortgage

A well-known insurance company is seeking a project leader to assist in the planning, progress and control of systems development and project support.

Candidates should possess good management skills and must have sound experience of implementing on-line systems preferably in an ICL environment. An insight into the insurance business would certainly be an added bonus.

The company offers excellent salaries, plus a generous package including a low-interest mortgage facility. This is a marvellous opportunity to consolidate a career with a well-established yet expanding company. Ref: 0912/B

Real Time/Math. Modelling

Surrey: £8,000-£13,000

A major systems house is looking for analyst/programmers to work on recently acquired projects. The company is committed to providing the highest calibre technical expertise to clients within the commercial, industrial and defence sectors.

Applicants must possess a tertiary qualification plus at least two years in a real time environment. Especially attractive will be experience of PDP 11, VAX or HP DTC's using Fortran, Macro II, Basic or Pascal although other hardware/software backgrounds will be considered. Involvement in mathematical modelling or communications would be useful.

These positions offer excellent career prospects with an interesting and innovative company. Ref: 0912/C

(1911)

For further information, write to Computer Professionals quoting the advertisement reference no; alternatively phone Isabel Bruce or David Hatcher on 01 584 8790.

CP Computer Professionals looks after the professionals.

OPERATIONS

IBM DOS/VSE CH.OP **c£9,000**
This famous Hi-fi manufacturer requires a career-minded senior operations professional with a minimum of four years' operating experience. Mature responsible manner essential as duties will include the supervision of four operators. Excellent discount on all products.
B.6852

IBM OS/VS1 S/LEADER **£8,200**
Sub. Mortgage, Free Life Assurance and BUPA cover are part of the package offered by this well-established financial organisation. Candidates must have a minimum of three years' experience, preferably with some VM experience and possess leadership qualities.
B.6761

PDP 11/70 SNR OPS **c£8,500**
Career opportunities offered by well-established progressive organisation based in London. Our client requires ambitious, competent operators with a minimum of two years' RSTS/E experience for demanding position with excellent prospects and worthwhile company benefits.
B.6846

VAX 11/780 OPS **c£7,000**
This ultra-modern professional company based within easy reach of London Bridge, requires a first-class operator with a minimum of two years' VMS experience. Must have ability to take on greater responsibilities as there are rapid promotional prospects. Good working conditions and generous fringe benefits.
B.6808

SYSTEMS AND PROGRAMMING

PROGRAMMERS & ANALYST/PROGRAMMERS

LONDON IBM COBOL to £12,000
IMPRESSIVE OPPORTUNITIES! TRAINING! EXC. SALARY + PERKS!
Our client, an international company with offices throughout Europe and the States, are currently expanding and seek to recruit programmers and programmer analysts. They retain IBM 4341 machines using Cobol, CICS and DL/1. Applicants should have a good educational background, at least 'A' level standard, and a minimum of 18 months IBM Cobol. Some exposure to CICS and DL/1 is preferable, but TRAINING is offered where necessary. Successful candidates will be working in small project teams working on a variety of applications and will be involved in the development of new Real Time Systems. Fantastic opportunity for people wishing to make a career move into a progressive company. Excellent benefits include – Regular Reviews, Free Lunch, Non-Contributory Pension Scheme, Free BUPA, Season Ticket Loan Scheme and 5 weeks' Holidays.
S.6849

PROGRAMMER/ANALYST

MIDDLESEX BASIC £9,500 + BONUS
This large, respected company, located on the Middlesex/Surrey borders are currently looking for an experienced programmer/analyst for a newly-created position. Candidates must have two years' experience of commercial programming, preferably in Business Basic on Data General computers, although other hardware backgrounds will be considered. Applicants for this position must be articulate as there will be a large amount of user contact, a current driving licence will also be looked upon as a definite asset. The salary range for this position is negotiable and an annual bonus will be given along with travelling expenses.
J.6854

ANALYST/PROGRAMMERS

CITY COBOL £10,000+ PA
An exciting opportunity to join a prestige installation, currently installing Wang VS 100 hardware. Being a relatively new department, all work is development. The company is heavily involved in the field of International Finance and is wholly owned by a large British institution. Applicants should be educated to degree level, and have a minimum of two years' experience in a commercial environment on any large-scale mini, such as Wang, Dec, etc. Candidates must be presentable and articulate and preference will be given to people who have had exposure to structured programming and systems techniques. Together with an excellent salary this company offers LVs, reduced rate loans and first class opportunities for promotion.
J.6862

ANALYST/PROGRAMMER

LONDON IBM, COBOL to £11,000
This is definitely not an ordinary run-of-the-mill position! Working for a prestigious firm of accountants – this is an opportunity not to be missed. Our client, based in the City, wishes to recruit an analyst programmer, preferably in their mid-20s. You will be providing technical back-up, and advising clients both in the UK and Europe on the implementation of new systems. This is a 'consultancy' type role where personality and communicating skills are very important. The position offers a wide variety of work, working in IBM hardware with minis and micros. Ideal applicants will have 2 years IBM Cobol, lots of TRAINING will be given in CICS, Database, Minis and Micros. Ring NOW for further details.
S.6773

datascene

Datascene International Limited
Sceptre House 169-173 Regent Street London W1R 7FB
Telephone: 01-439 7871 Telex: 25851

London & Brussels

Computing Services Association

(1977)

ANALYST/PROGRAMMER

In the NORTH-WEST up to £10,000 p.a.

KEWILL SYSTEMS LTD of SALE, CHESHIRE install turnkey mini and micro-systems in Financial Distribution and Manufacturing environments.

We have immediate vacancies for senior staff who can show experience in these fields, can take project responsibility and can communicate with all levels of management.

Please send c.v. to: R. L. GARTON
KEWILL SYSTEMS LTD.
2 BROAD ROAD
SALE, CHESHIRE

1828

Planning and Transportation

Systems Analyst Computing Services

Up to £10,071 pa
Required an enthusiastic person (male or female) to join a small team developing new applications for the Department. The range of applications is very wide and embraces FORTRAN, BASIC, COBOL, IDMS and other packages. Applicants should have a minimum of two years' experience as a Systems Analyst, preferably in a technical environment. The Department's Computing Services Group consists of two teams utilising a wide range of up-to-date equipment including 17 mainframe terminals (DR530, 50 and 7602), high speed plotter, digitiser, 12 micro computers and a word processor.
If you wish to discuss the position informally, please telephone John Hannay on Nottingham (0602) 824624 ext. 307 or Fred Fordham on extension 332.
Application forms and further details are obtainable from the Director of Planning and Transportation, Staffing Section, Trent Bridge House, Fox Road, West Bridgford, Nottingham NG2 6BJ or telephone Nottingham (0602) 824624 ext 368. Closing date 23 December 1982. Please quote Ref. DN92.

Nottinghamshire County Council
County Hall, West Bridgford
Nottingham NG2 7QP
(1943)

Lion Systems Developments, currently Britain's number one manufacturer of Data Communication Systems and products, are expanding their operation to include a brand-new purpose-built Headquarters, situated at the edge of the Chiltern Hills, adjacent to junction 5 on the M40 in the village of Stokenchurch.

Opening shortly, the new Headquarters will expand the company's manufacturing capability considerably. To meet this demand there are now vacancies for the following personnel

Technical Sales Engineers

are invited to join us to sell our most advanced Data Network and Communications systems. Previous experience in the Data Communications Industry would be a definite advantage.

This is a challenging role in a competitive market place and requires ambitious, enthusiastic personalities. There is, of course, a highly competitive salary and a company car.

There is free membership of BUPA, valuable incentive schemes, contributory pension fund and a Sports and Social Club.

For more information on these valuable career opportunities contact: David Henderson, Technical Sales Manager, on High Wycombe 35028.

Lion Systems Developments Limited
Haddon House, Halifax Road
High Wycombe, Bucks

LION SYSTEMS DEVELOPMENTS
Data Communication Products Systems Design and Manufacture LIMITED
(1976)

UNIVERSITY OF CAMBRIDGE—COMPUTING SERVICE

The Cambridge University Computing Service provides a range of services to the University and to many other academic institutions in the U.K. The main facility consists of an IBM 3081D supporting a large user population with a wide range of applications. Other services include networking, microprocessor support and a hardware maintenance service. There are two vacancies for well-qualified and experienced professionals as follows:

SYSTEMS PROGRAMMER
to join a team involved with major development work in the MVS operating system; considerable experience in systems programming is essential for this job.

COMPUTER ENGINEER
to join a team providing a hardware maintenance service and installing and maintaining data communications facilities; qualifications in electronics and experience in computer systems required for this job.

Appointments will be to Computer Officerships in Grade II or Grade IV on salary scales between £5,895 to £10,340 (plus USS benefits).

Further particulars may be obtained from the Director of the University Computing Service, Computer Laboratory, Corn Exchange Street, Cambridge CB2 3QG. The closing date for applications is January 31 1983.
(1979)

Complete the coupon and return to Effectia Gravis, National House, 66 Wardour Street, London W1V 3HP, for your next PERMANENT or CONTRACT job, or phone 01-439 6481 (24 hrs.). (BLOCK CAPITALS PLEASE)

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Address (Permanent) .....

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Telephone: Home..... Office .....

Type of Transport..... Date of Birth .....

Current Position..... (Contract/Permanent) delete

Salary/Rate .....

Position Required..... (Contract/Permanent) delete

Salary/Rate .....

Notice Required/Date Available (delete).....

Areas Preferred: First Choice .....

Second Choice .....

Experience to date: (Last Position First)

Company Name and Location	From Mth/Year	To Mth/Year	Duties and experience

Date ..... Signature .....

Reg. No. ..... DATE .....

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YOUNG, DYNAMIC, FAST GROWING COMPANY

This is one of those rare opportunities to get in at the early stages of an enterprise with a big future!
Our client is an industry leader in Videotex related turnkey systems with a very successful national and international operation that in its three years of existence, has already established over sixty installations in fifteen countries. As a result of this success, there is an immediate requirement for a

NATIONAL SALES MANAGER

The person we are seeking will already be working in sales management or alternatively, in a senior selling role. Whichever the case, he will have the ability to lead and develop a professional sales team. In addition, he will be an enthusiastic, industrious and creative individual with an established record of sales success in applications related systems for a computer manufacturer or major software/systems house.
The job will be based in

LONDON

and an excellent remuneration package is envisaged which will provide a variety of fringe benefits including arrangements for pension, BUPA, motor car, etc., and total target earnings of

OVER £27,000

If you believe you measure up to this truly outstanding career opportunity, please contact Alasdair Scott or Peter Hubble now — it could be the most important sales call you ever make!
Ref: SSA/122
(1952)

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29 Oxford Street
London W1. (01) 734 9776

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39 Bore Street, Lichfield
Staffs. (05432) 56612

Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

THE UNIVERSITY OF SUSSEX

PROGRAMMER FOR ON-LINE SYSTEMS

An experienced programmer is required as soon as possible to help in the development of on-line student records and financial systems for the University administration. The systems are based on a DEC PDP 11/44 which currently services 30 terminals. Programs are written in RPL/RLETAB and run under the RSTS/E Operating System.
Applicants should preferably be able to demonstrate proficiency in the programming of on-line systems. Knowledge of a decision table language would be an advantage, although training will be given to an otherwise suitable candidate.
The appointment will be permanent with a salary in the range of £7,200 to £8,800 per annum (under review). The Conditions of Service include 26 days' annual leave, plus 14 days' public holidays and University closures.
Application forms, returnable as soon as possible, are obtainable from the Personal Office, Sussex House, University of Sussex, Falmer, BRIGHTON, East Sussex BN1 9RH (Brighton 606755 ext 434, Mrs Stapney) quoting reference 41/82.
For further information telephone Brighton 606755 extension 25.
(1984)

LANCASTER CITY COUNCIL
CITY TREASURER'S DEPARTMENT

COMPUTER PROGRAMMER

AP 4/5 — £9,873-£9,325

Applicants should be competent programmers in COBOL with at least two years' post training practical experience. Experience in Transaction Processing will be an advantage.

The City Council operates an ICL ME29 computer linked remotely to an ICL 2976 operating under VME/B.

Application forms and further details available from the undersigned at the Town Hall, Lancaster LA1 1PJ to whom they should be returned by Monday, 3rd January, 1983.

W. PEARSON
Town Clerk
(1941)

BRANCH MANAGER

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£15K BASIC. £30K ON TARGET
CHOICE IN QUALITY CAR

Top US manufacturer. Very successful in UK and expanding fast. Opportunity to take over established team — all currently on target.

You should have a provable track record of success in Mainframe/Mini Systems Sales with an industry-recognised leader and looking for your first line/management role.

For further information please telephone quoting reference 3868.
(1966)

LLOYD CHAPMAN ASSOCIATES
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CUSTOMER ENGINEERS

London, Manchester, Stoke, Southampton £8-12K

LONDON/MANCHESTER. Rare for a recognised manufacturer to offer ground-floor opportunities to engineers. Rarer still for two of our clients, leaders in 32-bit mini technology offer the chance of a lifetime for two engineers to benefit from ground-floor opportunities – state of the art 32-bit technology, full systems involvement and a highly lucrative package.
Stateside training, and superb opportunity for career development in this exciting area of computing to customer engineers who are looking for technical refreshment.

Computer engineers with ambition and experience? THEN call Keith Wells now for an early appointment on:

Alltronics People (Agcy)
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(01) 661 9797

DIRECT ADVERTISERS
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SENIOR ANALYST/ PROGRAMMERS

★ COMMERCIAL Systems design
★ BASIC Programming
★ MICRO/MINI Systems
★ Use of DISKETTES
★ USER Contact
★ 3 YEARS' experience

We are looking for a number of Specialists who match most of the above experience requirements.
We are expanding Software house and require people able to design and develop Systems for individual clients and for general use as packages.
Likely candidates will have the ability to learn new machines and languages quickly and will be flexible in their approach to work. They will also be able to work on their own.
The position offers a basic salary together with bonuses and other benefits related to experience and performance.
If you are interested and feel you suit the environment then please call:

ERIC DICKINSON or RICHARD BARKER
on (01) 943 2267, or write to:
R.S.B. Computers Ltd.
136-138 Pulwell Road
Teddington, Middlesex

SALES BIT

Quality of Management—34

Don't be taken in by your own propaganda

OVER recent weeks I have discussed some of the basic considerations that are necessary if sales meetings are to succeed in their purpose.

Clearly a sales meeting can have a variety of topics, some perhaps more important than others, but there can only be one real objective and that is to ensure that the participants are motivated into enthusiastically accepting and carrying out the propositions of the meeting. This cannot be achieved unless the interest of those present can be gained and sustained. The event must be entertaining.

You would be surprised how few salespeople actually know what they are selling against, in absolute terms. They know that the XYZ Computer Company sells a good product, some individual salesmen may even be aware of particular features; but seldom does an entire salesforce have complete fluency in the capabilities of its main competitor, let alone the other suppliers it is up against.

It can therefore be informative and entertaining to get a detailed appraisal of the products of competitors. The presentation could be given by the sales manager, someone from the marketing department or even a member of the salesforce by way of a special project.

It goes without saying that the presentation must be performed in a professional manner and be accurate in its details. It should also contain as much related sales literature, technical specifications and photographs as possible so that all concerned get a real "feel" for the product concerned.

Some products may be purchased especially for the presentation, others borrowed and in the case of large scale or expensive equipment it is not beyond the realms of possibility to arrange a visit to a local installation.

The most important consideration of such an event is to avoid being taken in by your own propaganda. Be completely honest about the opposition and don't try to hide any of the advantages. It is important for salespeople to know what they are up against and that they truly appreciate that their competitors have good products too.

By all means draw comparisons and highlight relative advantages of one's own product, but do not try and delude anyone, especially yourself.

Often salespeople take a very simplistic view of their own product. They latch on to a particular feature/benefit and make it into a dedicated cause, without real consideration for apparently less important aspects of the product that might in some circumstances be particularly important.

A potential client could have a special requirement calling for the use of an otherwise incidental feature; a competitor might have sold the prospect on a particular facility that needs to be cancelled out on a "me too" basis. A salesman who does not know everything about his own product is always vulnerable to being outsold.

There are two approaches to this kind of presentation. Either someone from another department, like marketing or technical support, can come along and point out the main strengths and weaknesses of the product's features and give an appreciation of its general or particular applications. On the other hand, selected members of the salesforce can be allocated the task of each giving a mini-presentation of say five to 10 minutes on a particular aspect of the product.

For instance, each talk may be about a particular device within a computer configuration; in others each presenter may deal only with aspects of a particular peripheral. In the case of, say, disc drives one might talk about access times and transfer rates, perhaps with competitive comparisons.

Another might discuss physical considerations like space, environment and weight. Another could discuss price, again with the relative prices of other suppliers as well as the relative merits of leasing or renting as opposed to purchase. Another might talk about the implications of magnetic media supplies; another about engineering support.

For a little investment on the part of a few individuals the whole salesforce can not only be much better informed but also entertained, so long as the sales manager gives plenty of notice to the presenters and keeps the emphasis on AID (you should know what that means by now) and a touch of showbiz.

Alan Williams

COURSES

■ AN 11-week course designed for teachers, speech therapists and others interested in the use of microcomputers for children with communication handicaps, is to be held in Manchester at the City of Manchester College next summer. The number of applicants is limited, so apply early for an application form to Head of Inservice, City of Manchester College of Higher Education, Hathersage Road, Manchester M13 0JA.

■ EXPERT SYSTEMS has arranged a series of one-day introductory courses on Prolog. The course is practical, and one of the main features is the time given to hands-on experience of using Prolog. Fee is £95 + VAT. Dates are December 14 and 22. The courses will be held in Oxford. For booking forms apply to Expert Systems, 34 Alexandra Road, Oxford OX2 0DB. Tel. (0865) 242206.

PUZZLE ANSWER

3 1 7
5 9 2
4 6 8
8 2 6
1 7 3
9 5 4

Computer Consultants & Personnel Services

TASK FORCE

(0782) 410217

44 Kingsway, Stoke-on-Trent, Staffs, ST4 1JH

ABU DHABI

PROJECT MANAGER/DOCUMENTALIST (IBM)

Degree standard of education, with experience of:

1 DP SYSTEMS DEVELOPMENT/DOCUMENTATION ORGANISATION
To work on Index Database Cover Creation and Maintenance of Thesaurus, Indexation and Document Retrieval

2 MICROFILMING TECHNIQUES
To work on Specifications and Selection of Equipment, Organisation, Training and Microfilming

Start: Jan. '83. Duration: 6-24 months
Rate: c£700 + p.w. tax free. Free flights + accommodation

LUXEMBOURG

Analyst/Prog — COBOL, Siemens 7536

Programmer — COBOL, Siemens 7536 under BS200 with JCL/EDT/IFG

Start: Mid Jan. '83. Duration: 12 months. Rate: Excellent package

SOUTH AFRICA

ICL TPMS Software Specialists

Start: Jan./Feb. '83. Duration: 2 years
Rate: Excellent package to include £30,000 + p.a.

(1972)

ADVANCED TECHNICAL SERVICES

Computer Recruitment Division

SYSTEMS ANALYST MIDDX c £12,500
Are you seeking the opportunity to move into Project Management, my Client, currently undertaking a major expansion plan within D.P. seeks 1st Class Analysts, Project Leaders with min. 4 years' sound computer systems exp. (pref. programming background) IBM SYS 34/38 exp. required along with excellent communicative skills. Superb Co. benefits normally associated with a large company.

SOFTWARE ENGINEERS SWITZERLAND EXCELLENT
International concern seeks Realtime Engineers with FLUENT GERMAN to develop and implement software for major projects. MIN 2 years' exp. ASSEMBLER, CORAL, FORTRAN, PASCAL, VAX/VMS UNIX op system. URGENT. Call now for details.

DEC PDP PROGRAMMER CITY £8,000-£9,000
Major services organisation retaining DEC PDP 11/70 now require, due to expansion, a BASIC+ programmer 18 months' exp. using RSTS/E to join busy informal development team. Every opportunity will be given to the successful applicant to progress into analysis. Please ring for more details.

REAL TIME PROG/ANALYSTS WI BASED c £11,000
Leading Software House urgently requires DP Professional with recent experience of any two of the following DEC PDP, DG NOVA, MICROS, ASSEMBLER, PASCAL, FORTRAN ALGOL OR BASIC. Applicants should ideally have a degree and be willing to travel within UK and Overseas. RING NOW FOR DETAILS.

TRAIN ON CICS MIDDX £8,500-£9,000
Leading manufacturing Co, retaining IBM 3033 running under DOS/VSE are seeking IBM PL/1 or COBOL Programmers with at least 2 years' experience. This is an excellent opportunity to train on TP and Database and progress into Analysis. Excellent Co. Benefits.

BIREN HOUSE
64 WILTON ROAD
LONDON SW1 1DE

01-828 5792
(24 hours)
(1940)

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your appointments register

Programmers

NCR/IBM/COBOL		**to £14K**
Insurance · Banking	London · H. Counties · N. Eng.	
COBOL/PL1/OS/CICS/IMS		**to £13K**
Commercial	H. Counties · Midlands · Manchester	
HEWLETT PACKARD		**to £9K**
Commercial Accountancy		Hampshire
HONEYWELL		**to £12K**
Systems Programming experience		Middlesex
DEC/HP/WANG/DG		**to £12K**
Basic · Cobol		Berks · Surrey
IBM 4341/COBOL		**to £10K**
Financial/Insurance		W Sussex
IBM		**to £16K**
System exp.		Essex
ICL/VMEB or K		**to £11K**
Financial		Surrey
IBM/UNIVAC/COBOL		**to £12K**
On-line/Database		Surrey
NCR/NEAT		**to £11K**
		Kent

Analyst/Progs

BURROUGHS/COBOL		**to £14K**
Commercial		Surrey
IBM/RPG2		**to £10K**
		London
IBM/UNIVAC/ASSEMBLER		**to £12K**
On-line/Database		Surrey
HONEYWELL 64/66		**to £10K**
Engineering background		Staffs

Hardware/Support

APPLICATIONS ENGINEER		**to £14K**
Systems/Peripherals		Based N. England
TECHNICAL SUPPORT		**to £13K**
Pre and Post Sales		Nationwide
SERVICE ENGINEERS		**to £10K**
		Nationwide
TECHNICAL AUTHORS		**to £ Neg.**
		UK + Europe
CAD/CAM/GRAPHICS		**to £15K**
		Home Counties
SOFTWARE SUPPORT		**to £12K**
DEC		Nationwide

Systems Analysts

IBM/ICL		**to £12K**
Stock Control/Commodity Control		London
CAD/CAM		**to £16K**
Real time · Modelling	Man · Essex	South West
IBM/BURROUGHS		**to £15K**
Commercial Accountancy		London/Surrey/Manchester
IBM		**to £15K**
Insurance/Financial		W. Sussex
ICL		**to £12K**
Pensions		Surrey
ICL 1900/2903/DME		**to £10K**
On-line		Cheshire

Software Engineers

CORAL/PASCAL/MASCOT		**to £13K**
Communications		Sussex/Midlands
DEC/CORAL/PASCAL/MASCOT		**to £13K**
Scientific/military/realtime		South West
MILITARY SYSTEMS/RADAR		**to £11K**
Coral · Mascot		Surrey · Essex · S. West
PDP/VAX/INTEL		**to £13K**
Telecomms · ATE		Surrey/London/Kent
FERRANTI/ARGUS		**to £12K**
		Berks/Surrey
HP3000/INTEL		**to £12K**
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CAD/CAM		**to £12K**
Military		Surrey

Snr Appointments

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Manufacturing/Textiles		N. England
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PROJECT LEADER		**to £12K**
Insurance/Financial		Surrey
PROJECT MANAGERS		**to £15K**
On-line/Database		Surrey
TEAM LEADER		**to £13K**
MVS		London

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telephone 01 549 9236

Sloangate The Appointments Register

SLOANGATE LIMITED
214 KINGS ROAD
KINGSTON-UPON-THAMES
SURREY KT2 5HX
(1981)

NLH ASSOCIATES

SALES SUPPORT MANAGER (DIRECTOR DESIGNATE)

£15,000 + Car + Bonus

THE COMPANY
Our client is a leading supplier of turnkey solutions based on a sophisticated range of micro and mini computers. The continued success of the company is a direct result of substantial investment in the development and enhancement of their software products and the high calibre of sales and support staff that they employ.

THE JOB
To provide a vital link between the salesforce and technical development staff in three locations in the UK. You will be required to run a small team of pre- and post-sales support specialists, co-ordinate training and support activities and set up an efficient customer services department.
You will also be on the executive committee to decide future plans for the company and eventually become a full board member.

THE PERSON
Successful candidates will probably be in their late twenties, early thirties, educated to degree level, or possess equivalent professional qualifications, and have a sound technical background.
Ideally you will currently be running a sales support team, within the computer industry, and seek a more challenging opportunity with greater career prospects. Alternatively you may have sales and marketing experience and now wish to move into a senior support role.

If you are a self motivated individual who is looking for a secure yet exciting opportunity to make a significant contribution to a small but dynamic management team then ring NEIL HADFIELD now quoting ref no JB717, or write sending details.
(1910)

205 VICTORIA STREET, LONDON SW1E 5NE.
TELEPHONE: 01-828 1574/1327

SHORTLISTED WITHOUT EVEN APPLYING

That's how it is when you register with Beechwood. Complete our application form, then just sit back and let the opportunities come to you — and they will! Our experience is wide — so are our contacts. This is just a selection from our range of vacancies:

PRODUCT MANAGERS
North London/Fifth Herts area
—Salaries in the £14,000 to £17,000 range + Benefits.
An expanding major UK Company in the business systems field is looking for three Product Managers for
a) COMMERCIAL
b) INTER CONNECTIONS AND TERMINALS
c) NETWORK RESOURCES AND APPLICATIONS FUNCTIONS ACTIVITIES.
The role of the Communications Systems Division is the development of a comprehensive range of local area networks and associated services and terminals. Qualified persons with a Technical/Commercial background and at least four years' Sales/Commercial/Marketing experience in a high technology industry are required. Good appreciation of marketing strategies and ability to Liaise with Customers in UK and Abroad essential for these positions.

ANALYSTS/PROGRAMMERS
Surrey
—Salaries in the £7,500 to £12,000 range depending on experience.
A small expanding systems house requires Analysts/Programmers using Minis & Micros in a Scientific & Technical environment. Self-motivated people are needed to work either individually or in small teams on a variety of existing and new projects. Of particular interest are experience in the following:- MACHINES: INTEL 8086/MOTOROLA 68000/PDP/VAX
LANGUAGES: CORAL 66/PASCAL/ASSEMBLERS
OPERATING SYSTEMS: (SYSTEMS EXPERIENCE) RSX11/VMS.

GRADUATE SOFTWARE ENGINEERS AND PROGRAMMERS
— Bracknell/Portsmouth/Mid Wales locations.
Salaries attractive depending on experience.
To join a small programming team working on design and implementation of Real-Time Systems, Mathematical Modelling and Simulation using CORAL 66 and MASCOT in the fields of defence applications.

PROGRAMMER
Dibol — Geneva area with paid for hotel accommodation.
Single status. Immediate start for a six month Contract.

SOFTWARE PROGRAMMERS
Norfolk
—Salaries negotiable depending on experience. An expanding company in the printing/typesetting industry is looking for self-starters who can work with a minimum of supervision. Two years' ASSEMBLER language experience preferably on PDP-11/LSI-11 or Z80 processors is required. Knowledge of PASCAL or other block structured high level language would be an added advantage.

MATHEMATICAL MODELLERS
London/Surrey/Herts/Bristol/Berks areas
— Salaries to £16,000.
Graduates with at least two years' experience in mathematical modelling and simulation programming (using FORTRAN) for defence projects.

SOFTWARE ENGINEERS AND PROGRAMMERS
London/Home Counties/West Country/Manchester/Leicester/West Midlands/Scotland areas
—Salaries from £8,000 to £15,000.
We have many vacancies registered for Graduates with at least one year's experience in Scientific Software or Real-time Systems. Knowledge of CORAL 66, PASCAL, MASCOT, MACRO 11 or ASSEMBLER is essential.

SOFTWARE SUPPORT ANALYSTS
Major industrial centres in the UK
—Salaries up to £12,000 + car but may be up to £14,000 for exceptional candidates.
This well-known company, specialising in the supply of advanced communications systems for office and industry is looking for Degree calibre persons with programming experience in high- and low-level languages. Knowledge of IBM and ICL hardware and data communications systems experience essential. The Software Support Analysts will give pre- and post-sales support in this fast expanding office communications business. Product familiarisation training up to a period of six months will be spent at Nottingham prior to returning to regional office.

For an application form, please send your coupon to George A. Lowl, Beechwood Appointments Register, FREEPOST, London W3 9BR (no stamp required). Telephone 01-992 8647 (24 hours).

Name.....

Address.....

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APPOINTMENTS REGISTER

NIGERIA

GROUP DP MANAGER

EXTREMELY ATTRACTIVE TERMS

A major industrial concern with headquarters in Lagos, is seeking to fill the vacant position of Group DP Manager. The contract would be for an initial period of 3 years and terms and conditions are extremely attractive.

This company uses NCR 8250 and 8430 computers and is currently reorganising its operations. There is also expected to be a significant program of system development during the next year.

Previous overseas experience, NCR experience and Project Management experience would all be considered desirable although not mandatory. However, applicants should have at least 10 years of DP experience and some DP Operations background.

Please forward your résumé to:
Box 1233 COMPUTER WEEKLY

Interviews will probably take place in London around mid-December

(1918)

North Sea Oil and Gas Aberdeen

Computer Operator

Total Oil Marine p.l.c., is a major North Sea energy Company, responsible for the continuous delivery of up to one third of Britain's natural gas and committed to an expanding programme of offshore activity. We are a wholly-owned UK subsidiary of Compagnie Française des Pétroles, one of the world's leading oil companies.

Now Total, as the appointed operator of Alwyn North, is beginning the development of this field which will add to Britain's oil and gas reserves and create opportunities and jobs over the next few years.

We are seeking a Computer Operator to join the small professional team working in our modern Aberdeen office with an IBM 4341 configuration.

You will be required to operate within a VM/CMS time-sharing, DOS/VSE batch and CICS on-line environment and must have a minimum of 2 years' relevant IBM experience. You will also be involved in the development of operating standards, data control and user contact, and must therefore have a flexible approach to your work. Although the operation of the computer facilities is at present not on a shift basis, you must be prepared to work under a shift system in the future.

For this position, Total offers an excellent remuneration package including an index-linked salary, generous year-end bonus, subsidised meals, BUPA membership, comprehensive Pension and Life Assurance schemes as well as relocation assistance where appropriate.

For an application form, please write to or telephone:

Isabel H. Doverty,
Recruitment Officer,
Total Oil Marine p.l.c., Crawpeel Road,
Altens Industrial Estate, ABERDEEN AB9 2AG
Telephone: (0224) 875555 Extension 3348

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